The Journal
OF THE KANSAS MEDICAL SOCIETY

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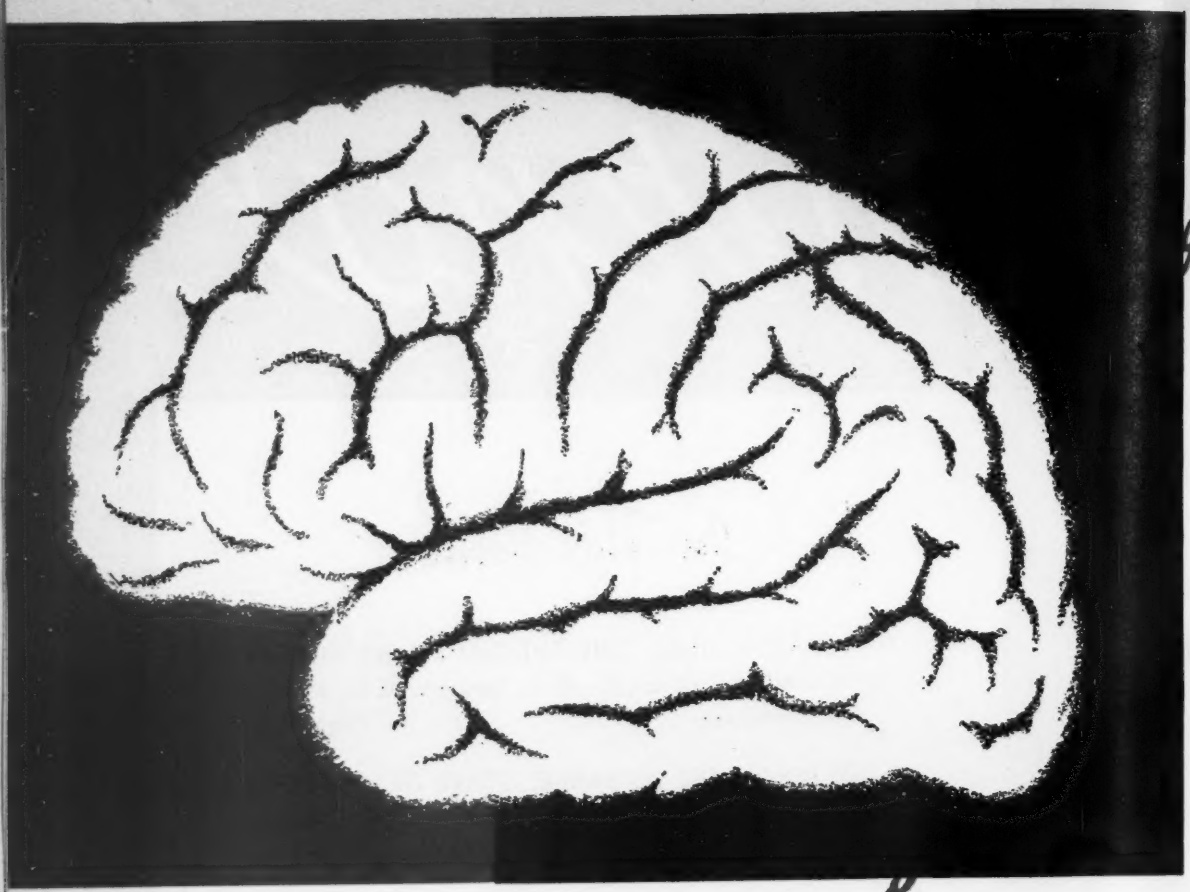

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(1) Krantz, J. C., and Carr, C. J.: The Pharmacologic Principles of Medical Practice, Baltimore, The Williams & Wilkins Company, 1949 (Reprinted 1950), p. 518. (2) *ibid,* p. 515. (3) Carter, S.: Epilepsy, in Conn, H. F.: Current Therapy 1952, Philadelphia, W. B. Saunders Company, 1952, p. 612. (4) Salter, W. T.: A Textbook of Pharmacology, Philadelphia, W. B. Saunders Company, 1952, p. 231.

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Entered as second-class matter at the post office at Fulton, Missouri, June 19, 1953, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 2, 1918. Office of Publication: 1201-05 Bluff Street, Fulton, Missouri.

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Subscription: A year's subscription to the Journal is included in membership in the Kansas Medical Society, with $2.00 of each member's dues apportioned to the Journal. Rates to others, except in foreign countries, $4.00 per year or 60c per copy.

Material: Scientific articles, editorials, and data of general interest are invited from all members. Articles are to be submitted on condition that they are contributed solely to this publication. A right is reserved to reject any material deemed unsatisfactory.

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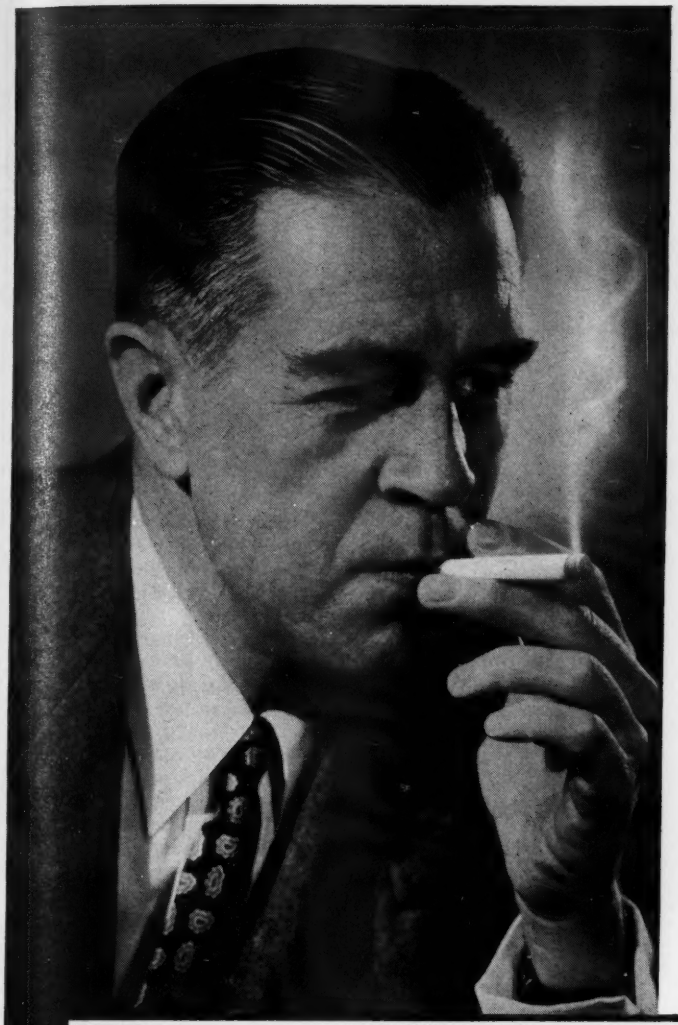

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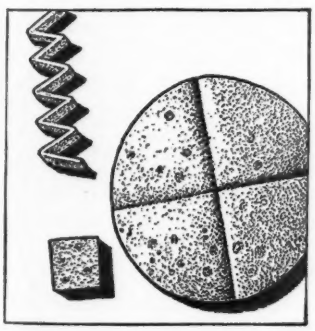

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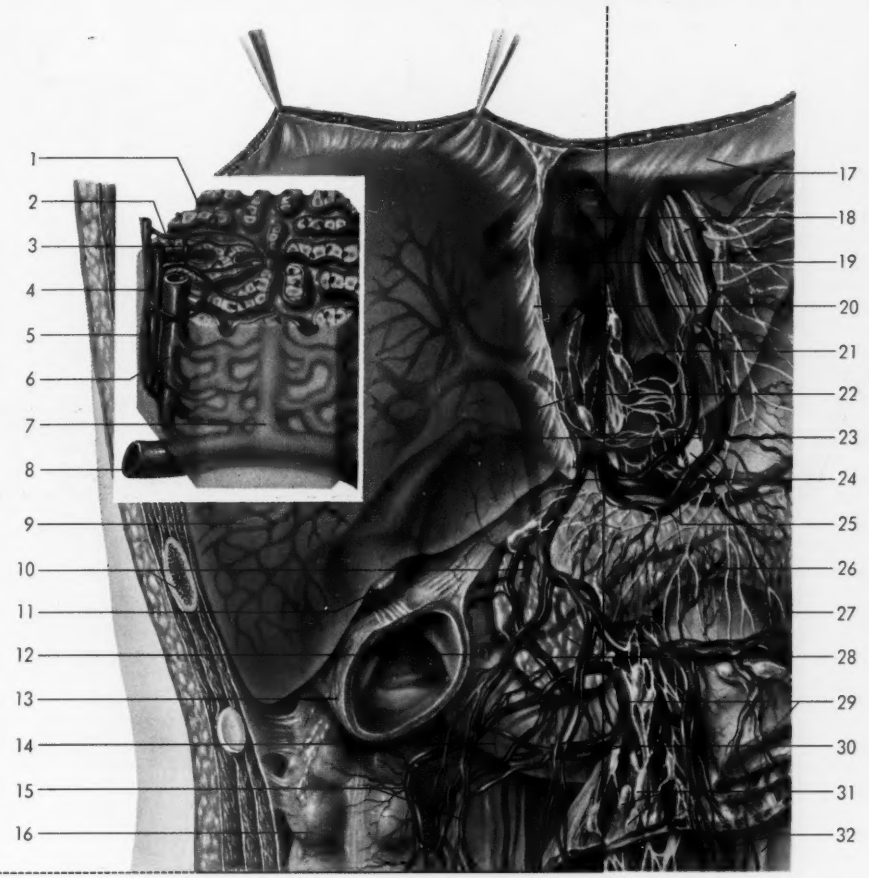

1 Sinusoid
2 Arteriole
3 Bile capillary
4 Branch of hepatic artery
5 Bile duct
6 Branch of portal vein
7 Central vein
8 Branch of inferior vena cava
9 Right lobe of liver
10 Common bile duct and tenth rib
11 Gallbladder
12 Papilla of Vater
13 Transverse colon
14 Duodenum
15 Branches of right colic artery and vein
16 Ascending colon
17 Coronary ligament and esophagus
18 Left hepatic vein and left vagus nerve
19 Inferior vena cava and right vagus nerve
20 Falciform ligament and branch of portal vein
21 Abdominal aorta and celiac plexus
22 Hepatic duct and hepatic artery
23 Cystic duct and celiac artery
24 Celiac ganglion and gastroduodenal artery and vein
25 Left gastric artery and coronary vein
26 Pancreatic duct
27 Right gastroepiploic artery and vein
28 Head of pancreas and pancreaticoduodenal artery and vein
29 Superior mesenteric artery and vein, and jejunum
30 Right colic artery and vein
31 Superior mesenteric lymph nodes
32 Inferior mesenteric vein and left ureter

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1. Van Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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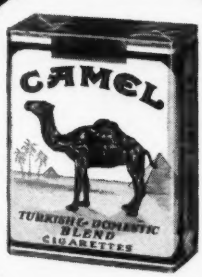

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Meat and its applicability in the Dietary Management of Atherosclerosis

Contrary to the former belief that serum cholesterol levels are primarily related to ingested animal fat and consequently to dietary cholesterol, it now appears that the total amount of fat in the diet, not its source or cholesterol content, is a more important factor in determining the blood cholesterol concentration.[1,2,3,4] Clinical observation has shown that ingestion of vegetable fat—which contains no cholesterol—will, like fats of animal origin, raise the serum cholesterol level.[3, 5]

Recent basic research on the influence of fats and cholesterol on human health has done much to further progress in the fight against atherosclerosis. It will serve well in dispelling the mistaken fear that reasonable amounts of foods of animal origin predispose the individual to this vascular disease.[6] As a matter of fact, a dietary inadequate in essential nutrients but providing too many calories and too much fat from *any* source may well be an important factor underlying the deposition of fat and cholesterol in the arteries and liver.

Cumulative evidence indicates that lowered blood levels of cholesterol may be effected by restricting the total fat intake.[1] Except in instances of refractory hypercholesteremia, in which a daily fat intake as low as 10 Gm. may not reduce cholesterol levels to normal, diets containing 20 to 30 Gm. of fat, or even more, often produce low cholesterol blood levels. In the clinical application of this principle, various palatable, low fat diets which supply three servings of meat daily (containing 18 Gm. of fat) have recently been suggested for the dietary management of arteriosclerosis and for enlisting the cooperation of patients.[1] The meat servings were chosen from a large variety of cuts and kinds of meat (fat trimmed off, as lean as possible). Meat adds to the eating appeal of the fat-restricted diet and contributes important amounts of biologically complete protein, the B group of vitamins including B_{12}, and food iron—all of which are important for a good state of nutrition in the atherosclerotic patient.

1. Hildreth, E.A.; Hildreth, D.M., and Mellinkoff, S.M.: Principles of a Low Fat Diet, Circulation *4*:899 (Dec.) 1951.
2. Bloch, K.: The Intermediary Metabolism of Cholesterol, Circulation *1*:214 (Feb.) 1950.
3. Keys, A.; Mickelson, O.; Miller, E.V.O., and Chapman, L.B.: The Relation in Man Between Cholesterol Levels in the Diet and in the Blood, Science *112*:79, 1950.
4. Gubner, R., and Ungerleider, H.E.: Arteriosclerosis, a Statement of the Problem, Am. J. Med. *6*:60, 1949.
5. Hildreth, E.A.; Mellinkoff, S.M.; Blair, G.W., and Hildreth, D.M.: The Effect of Vegetable Fat Ingestion on Human Serum Cholesterol Concentration, Circulation *3*:641 (May) 1951.
6. King, C.G.: Trends in the Science of Food and Its Relation to Life and Health, Nutrition Rev. *10*:1 (Jan.) 1952.

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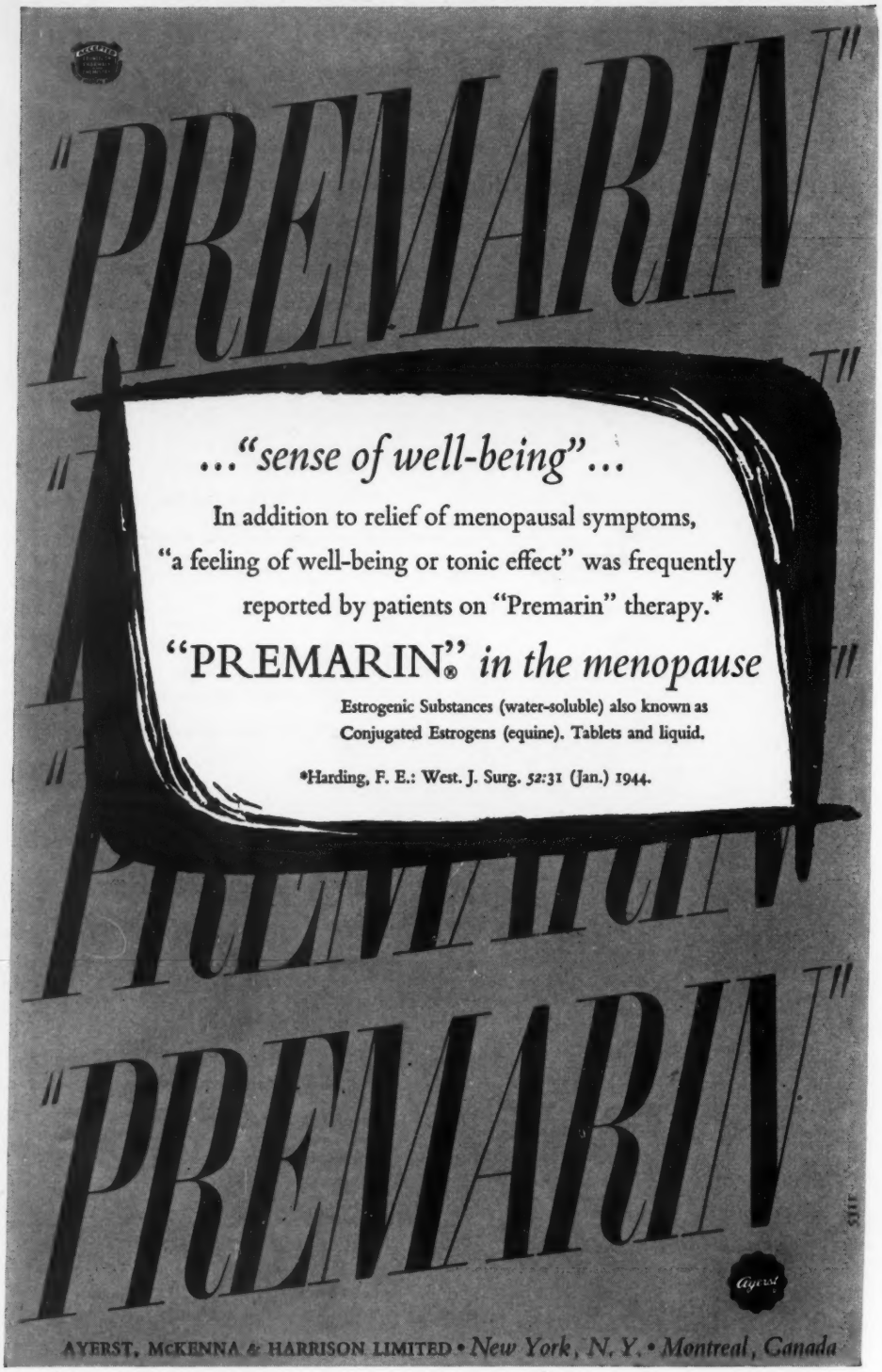
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1. Reich, W.J. et al. (1951), A Recent Advance in Estrogenic Therapy. I. Amer. J. Obst. & Gynec., 62:427, August. 2. Perloff, W.H. (1951), Treatment of the Menopause. II. Amer. J. Obst. & Gynec., 61:670, March. 3. Reich, W.J. et al. (1952), A Recent Advance in Estrogenic Therapy. II. Amer. J. Obst. & Gynec., 64:174, July.

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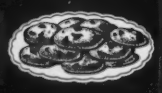

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THE JOURNAL
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Volume LIV JULY, 1953 No. 7

The Practitioner, the Surgeon and Acute Abdominal Disease*

R. L. Sanders, M.D.
Memphis, Tennessee

Recently, in looking through some old medical journals, I found the following statements: "The condition of the average general practitioner is far from encouraging. . . . Various causes are blamed—sanitation and prophylaxis. The trend of the profession toward organization has made medicine a sordid business. The enormous extension of surgery has frightened people. . . . Few will deny that specialism in medicine has been carried too far." The article containing these statements was written in 1909, 44 years ago!

Almost 20 years later, in 1926, another author had this to say: "In thinking of such changes in medicine, of the general practitioner representing one extreme, and a sane one, and the highly trained specialist representing the other . . . I believe that with the help of time an adjustment will be made. . . . The balanced mind, the trained and thoughtful mind . . . does not become excited or unbalanced at such changes in experience. . . . It sees such things in the long view and knows that with the help of time an adjustment will be reached."

To the younger men of our profession it may seem strange that the general practitioner was already facing the problem of specialization in the early part of the century. If one looks back over the years, however, and considers the changes which have gradually been brought about, and especially within the past few years, he can appreciate the wisdom in the second quotation, that extremes are transitory and, with the help of time, adjustments will be reached.

In the first place, the present situation of the average general practitioner is most encouraging. The prevention of disease has become a significant part of the general practitioner's field of endeavor and, in fact, almost his field alone. As for the trend toward organization in medicine, instead of making medicine "a sordid business," organization has proved a powerful force for scientific progress.

Nor does the enormous extension of surgery any longer frighten people. Most major operations 44 years ago were followed by a mortality of 50 per cent or more. Far more extensive procedures today carry a mortality of 5 per cent or less.

In view of its present scope, one is amazed at the thought that specialism had been carried too far in 1909. We have found that specialism is an inevitable process as more and more is discovered about the origins and treatment of disease. The significant fact is that general practice has come to be a specialty itself.

It now appears that we are in process of completing the adjustment. We have become aware of the need of a coordination of all the specialties in order to provide the best in medical and surgical practice. We realize that without this coordination, each specialty becomes so insular as to lose much of its effectiveness. In particular, it is recognized that all the specialties must be coordinated with general medicine, and toward this end, better training in medicine is a first requisite. As a consequence, our schools are providing postgraduate training in general medicine, special organizations are functioning for a similar purpose, and several specialty boards are requiring evidence of general knowledge in medicine before they will certify a candidate.

* Presented at the 94th annual session, Kansas Medical Society, May 4-7, 1953.

It is a source of much gratification to me that former lines of divergence are becoming lines of convergence. In my field of practice, abdominal surgery, we are often dependent upon the general practitioner for the recognition of surgical diseases and not infrequently must call upon him for assistance in the preoperative and postoperative care of patients. Meetings such as this afford an excellent opportunity for promoting this coordination of effort, in that they provide a medium for exchanging experiences and getting together in matters of mutual concern.

In no situation is it so necessary for the general practitioner and the surgeon to combine their efforts as in the care of the patient with an acute abdomen. This condition requires a diagnostic acumen of the first order, as well as the soundest judgment in weighing the indications and the most opportune time for surgical treatment. With these thoughts in mind, it is my purpose to discuss some of the acute abdominal diseases in which the general practitioner and the surgeon are most often called upon to work in cooperation.

ACUTE APPENDICITIS

Despite our familiarity with acute appendicitis, too often operation is still delayed too long. On the other hand, it must be agreed that too many normal appendices are being removed. The latter fact is due, in the first place, to an incomplete history and inadequate findings. In the second place, it is due to anxiety and urgency on the part of the family, and in the third place, to fear on the part of the physician that an error in judgment may have disastrous results.

Every physician sees both the typical and atypical types of acute appendicitis. In general, the attack is initiated by epigastric pain, followed by nausea and vomiting, and later by localization of the pain in the right lower quadrant. There are, however, many variations from this syndrome. It has been my observation that the patient usually complains of a feeling of distress, with gaseous distention in the mid-abdomen, especially about the umbilicus. Frequently, the patient states that the sensation is not unlike acute indigestion, or the distress which follows the ingestion of some food which disagrees. In addition, the patient has a sense of "stoppage" or complete cessation of intestinal function. Or, if the appendix lies in the pelvis, diarrhea may be associated.

In the early hours of the attack, an elevation of temperature is uncommon, and the patient does not appear ill. If the attack is severe, however, the patient may be prostrated from the beginning.

The leucocyte count is not always reliable as a diagnostic feature. It may rise to a high level in some cases and in others may remain within normal limits. The clinical picture provides the best criterion for the diagnosis.

On physical examination, tenderness is elicited over the site of the appendix. If the appendix lies high, behind the cecum, tenderness will be elicited in the flank. A tender area in the pelvis on digital examination suggests a low-lying appendix. Rebound tenderness is a significant sign.

It is axiomatic that removal of the appendix is indicated as soon as the diagnosis is made. A McBurney incision is the approach of choice, and in the ultimate will be followed by a lower mortality. The matter of drainage will depend upon whether or not perforation has taken place.

Mesenteric adenitis in children is frequently confused with acute appendicitis. It has been my privilege to see many children with this condition in collaboration with my pediatric confrères. Mesenteric adenitis may be suspected if the general appearance of the child suggests insufficient nourishment, and a history of poor appetite, constipation, and irregular attacks of cramping abdominal pain is obtained. The initial attack is rarely identical to that of acute appendicitis and, as a rule, is not severe.

Obviously, it is impossible to make a positive diagnosis in all cases of mesenteric adenitis, though if the possibility of such a condition is kept in mind, many of these children may be spared an unnecessary operation. If the appendix is removed, the diagnosis may be confirmed by excision of an inflamed mesenteric gland for pathologic study. Following operation, adequate treatment, including an ample diet containing fruit juices, together with cod liver oil and heliotherapy, will cause the condition to subside.

ACUTE CHOLECYSTITIS

Acute cholecystitis may be provoked either by strangulation and edema of the ducts from a chemical reaction or infection, or, more likely, by obstruction of the cystic duct by a stone. In the differential diagnosis, one must often consider a perforated peptic ulcer, an acutely inflamed, high-lying retrocecal appendix, acute pancreatitis, and coronary disease. A history of previous symptoms of cholecystitis and the roentgen demonstration of a non-functioning gallbladder will assist in establishing the diagnosis.

The acute seizure is characterized by pain in the upper right abdomen or epigastrium, with radiation to the back. One must distinguish between an ordinary gallstone attack, which subsides spontaneously, and an acute process which may run an entirely different course. For this reason, the patient must be kept under close observation. If the pain is relieved after a few hours and other symptoms begin to subside under medical management, operation may be deferred. We have found that in the cases which require surgery, three features are outstanding: (1) sustained pain with exacerbations every few hours

over a period of 24 to 48 hours; (2) a palpable, tender mass in the right upper quadrant; and (3) a systemic reaction characterized by an elevation of the temperature and leucocyte count. In the presence of these findings, immediate operation is indicated.

It is our belief that most patients with acute cholecystitis should be operated upon as soon as the diagnosis is determined, just as in acute appendicitis. The surgical mortality is low and recovery is prompt.

ACUTE PERFORATION OF PEPTIC ULCER

The picture of a perforated peptic ulcer is typical and can hardly fail to be recognized. Pain is the outstanding feature and, as a rule, is sudden in onset and prostrating in intensity. The patient lies immobile and resents any movement or examination. In most cases, shock is surprisingly absent. The patient is usually pale and perspiring, and his appearance is out of proportion to the pulse and blood pressure, which are approximately normal during the early hours of the attack. A board-like rigidity of the abdomen is characteristic and in itself is almost diagnostic. Nausea and vomiting are seldom associated. As a rule, a plain film of the abdomen demonstrates the presence of air beneath the diaphragm.

In some cases, the perforation will be protected and the symptoms will subside spontaneously. If the pain persists for a few hours, however, surgical intervention is imperative, as the mortality increases in proportion to the number of hours which elapse between the perforation and the time of operation. Our own experience has proved this point. During the past 10 years we have operated upon 41 patients with acutely perforating duodenal ulcers. Five of the group died postoperatively—a mortality of 12 per cent. The significant fact is that three of the five had perforations of three days duration or longer.

We have had no experience with the conservative management of acutely perforating peptic ulcers, as advocated by the English. It seems a little dangerous to use the Levine tube with suction in the hope that the perforation will close spontaneously and the intraperitoneal fluid will be absorbed.

In general, it is our custom to do no more than close the perforation at operation. The immediate necessity of saving the patient's life is the primary consideration. The ultimate result is secondary, even though a large number of these patients may be expected to require a second operation. At present, however, there is a definite trend toward primary resection in these cases when the condition of the patient permits.

ACUTE INTESTINAL OBSTRUCTION

The answer to the question of immediate surgical intervention in intestinal obstruction hinges upon a distinction between simple mechanical obstruction and imminent or actual strangulation. In the latter, the decision is urgent. Without surgery, the strangulation leads sooner or later to gangrene, perforation, and peritonitis.

Adhesive bands and angulation of the small intestine by adhesions are by far the most common causes of the obstruction. Hernias, intussusceptions, volvulus, tumors, and other conditions are together responsible for less than half the cases. In the vast majority, the site of the obstruction is the ileum, and it is here that strangulation is most likely.

Simple Mechanical Obstruction. The patient with a simple mechanical obstruction may not appear acutely ill, and the pulse, respiration, temperature, blood pressure, and leucocyte count may be little, if any, altered from the normal. Recognition of the condition should be relatively easy by the colicky pain, vomiting, and abdominal distention. Vomiting is likely to be profuse, particularly if the obstruction is high. The distention varies in degree; often, it is apparent only upon examination. An audible and visible peristalsis is frequently associated. Some rigidity may be present, but no tenderness. If the obstruction is produced by a tumor or by intussusception, the mass may be detected by palpation. A low abdominal mass may be found on rectal or vaginal examination.

Strangulation Obstruction. In every case of suspected intestinal obstruction, the patient should be kept under the closest observation. As the blood supply of the intestine becomes damaged, the obstructive symptoms and signs grow more pronounced and the patient appears acutely ill. The colic increases in severity, and between the attacks the patient experiences constant pain of a lesser degree. The vomiting becomes more violent and, if the obstruction is low, may be fecal in type. The distention likewise increases and is accompanied by further resistance of the abdominal muscles and more or less tenderness. A palpable mass will often be detected. The temperature and leucocyte count rise and, unless the patient has received ample fluids, evidences of marked dehydration are observed. These signs will be recognized as those of early strangulation and are surgical in their implications.

In some cases, this sequence of events takes place within a few hours, the signs of strangulation appearing almost from the beginning of the attack. In others, several days may elapse before the crucial stage manifests itself. The questions for the physician to ask himself are: (1) does an obstruction exist and, (2) if so, is it mechanical or strangulating? Physical examination, repeated often, should provide the answers. Roentgenograms are useful for demonstrating the location and type of the obstruction. These, also,

should be repeated at intervals to determine the degree of distention and whether or not the obstruction is increasing.

The use of the indwelling tube with suction for acute intestinal obstruction should not be prolonged. Often, this procedure gives one a false sense of security. Unless definite relief is soon apparent, surgery is the safest course.

In the presence of a mechanical obstruction, operation is directed toward removal of the cause. If adhesions are responsible, release of the adhesive bands is sufficient. In the strangulated group, also, early removal of the cause may preclude the necessity for resection. In either type, if the bowel is definitely damaged, resection may be required.

Acute abdominal disease demands the most alert observation to determine the diagnosis and whether or not operation is indicated. If indicated, the earlier the procedure is undertaken, the better. In other cases, constant watchfulness to determine what course the process will follow is imperative. If the pain and other symptoms do not begin to subside within 12 to 24 hours, operation should be performed without further delay. The high mortality following operations for acute abdominal diseases is attributable largely to postponement of surgery until the process becomes irreversible. The general practitioner and the surgeon share the responsibility for the outcome in these cases.

In closing, I wish to express my personal appreciation of the general practitioners and their position in the profession. By the very nature of their specialty, they must have a considerable knowledge of all the branches of medicine. In my surgical career of more than 35 years, I have found that my confrères in general work have fulfilled their difficult position as the cornerstone of medicine in a manner which reflects the highest credit upon themselves. I hope I am as close to their hearts as they are to mine.

Iliac Bone Used as Barrel Stave Grafts for Non-Unions: Report of Eighty-One Cases

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Non-union of long bone fractures has always been a problem to the general practitioner, general surgeon, and orthopedist. There are many reported methods of treating this problem; most common are the use of inlay, onlay, sliding, and ribbon grafts, all of which use tibial bone alone or a combination of tibial and cancellous. Most of these procedures require removal of bone from a functioning tibia. In 81 cases to be reported, only iliac bone was used as the osteogenic factor. Our primary objective in using ilium was to preserve the function of a good leg, thus not prolonging the hospitalization required for the graft. There is a distinct economic advantage, for the patient, in maintaining the function of the good leg.

Those who have done bone grafts know that complications can occur at the donor site of the tibia, varying from fracture to persistent pain and a feeling of weakness and instability. To appreciate the osteogenic vigor of cancellous bone, one needs only to note the infrequency of non-unions in fracture of cancellous bones. Lawson Dick, Wing Commander of the Royal Air Force, has the following to say about cancellous bone.

"A transplanted tissue can continue to live only if it can derive nourishment from the bed into which it is transplanted. It therefore follows that the

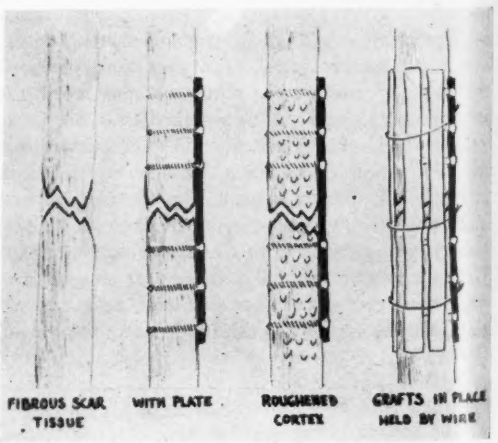

Figure 1

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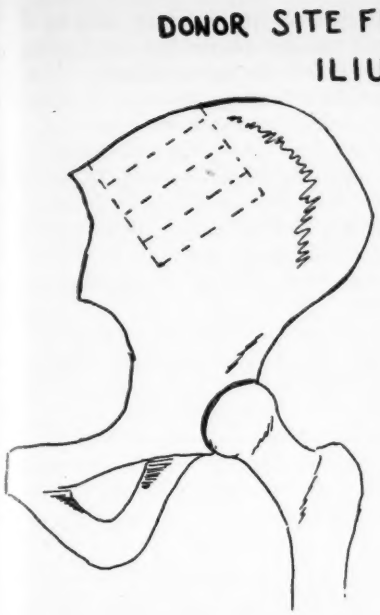

Figure 2

abundant bone cells in small pieces of cancellous bone, readily accessible to the ingrowing vascular buds, are more likely to live and grow in their new surroundings than the scanty cells of dense cortical bone. Compare, for example, how split-skin grafts thrive as free transplants, while grafts of whole-thickness skin need much more careful handling."

The non-unions in our cases were primarily referrals, and they resulted from all forms of treatment which included closed and open reduction, external and internal fixation, traction and pins above and below the fracture site. No attempt will be made to explain the cause of non-unions except to say they do exist, did exist, and will exist.

Our cases were declared to be non-union after a minimum immobilization period of four to five months. There was x-ray and clinical evidence to substantiate a diagnosis of non-union, including sclerosis about the bone ends, rounding off of the fracture site, and absence of callous in the x-ray, and frank motion on manipulation through the fracture site.

Eighty-one cases were treated by the barrel stave type of graft, using autogenous iliac bone obtained from the wing of the ilium. The grafts consisted of the outer cortex of the ilium with the subjacent layer of cancellous bone in strips two to three inches in length and one-fourth inch in width. Usually the fracture was first stabilized by fixation with an adequate stainless steel plate and screws or an intramedullary nail. In several cases the fibrous tissue between the bone ends was sufficiently firm that no stabilization was necessary. The cortex, proximally and distally, was then denuded and roughened in its entire circumference to provide a bleeding bed for the application of the grafts. These iliac bone strips, removed by the second member of the team, were placed parallel with the bone, crossing the fracture site, and held in place by wire, catgut suture, or at times, Parham bands.

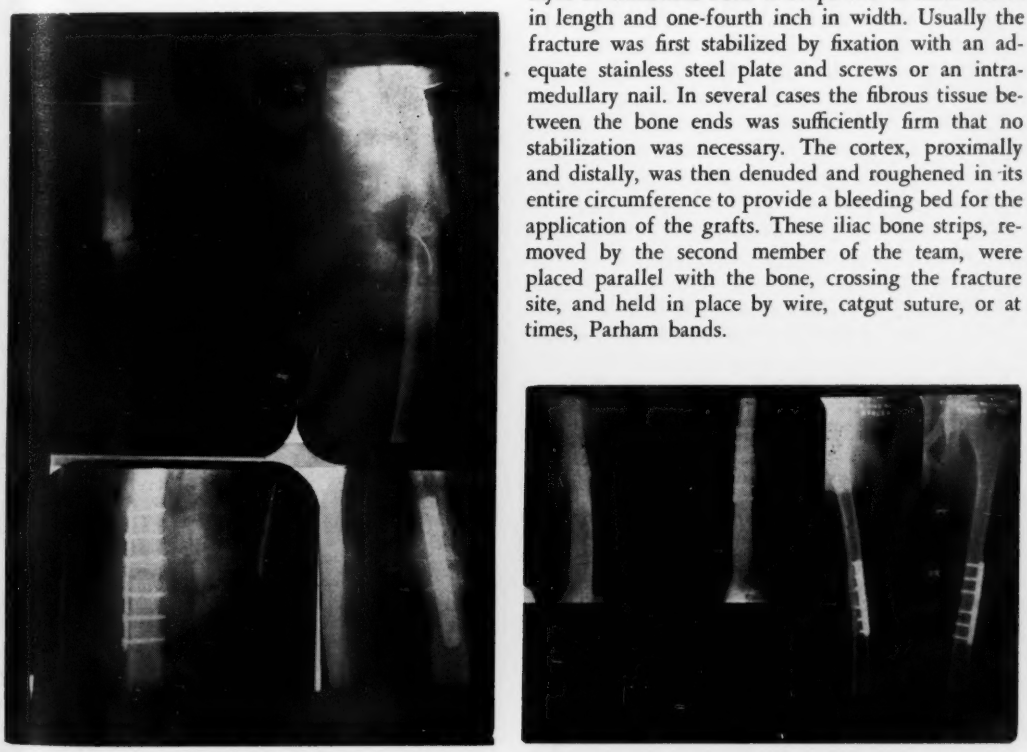

Figure 3A and 3B. X-rays of a 15-year-old boy with a non-union of the femur, three months after insertion of the pins. Pins are above and below fracture site. Successive pictures show graft in place and union in nine weeks.

Iliac grafts of this length and this thickness are flexible and can easily be brought into close approximation with the denuded cortex. The scar tissue between the fragments, in most instances, was not disturbed; however, if it was removed to realign the fragments properly, the interval was packed with cancellous bone removed from the medullary cavity of the ilium before the application of the strips. Casts were applied in all grafts of the forearm and tibia, incorporating the joint above and below the surgical site. Femurs with an intramedullary nail had no external fixation. The humerus was usually immobilized by strapping to the chest wall. Figure 1 is a schematic diagram showing the progressive steps in the application of the strips for barrel stave grafts.

The average length of time for clinical union of the barrel stave type of graft was four and one-half months postoperative. This applied to all the long bones, namely, the tibia, femur, humerus, and the bones of the forearm. Several healed as rapidly as two months; others took as long as ten months. X-ray examinations many times showed union before we felt clinically there was enough for active function. We depended more upon the clinical evidence than we did upon the x-ray.

A further break-down of these cases showed the average healing period of the 22 femurs in this series to be five months. There was one operative failure due to absorption of the graft, and it was repeated successfully. There were 23 cases of non-union of the shaft of the tibia, one of which resulted in a failure at three months because of insufficient callous, and this was repeated successfully. The average healing period was five and one-half months. The repeated bone grafts in the femur and tibia with the second operation were not considered as new cases.

There were 31 cases of non-union in the forearm. The average healing period was four months. There were two cases of non-union at the end of six months and they, as yet, have not been repeated. There were five cases of non-union in the humerus, and the average healing period was three months.

The criteria of healing period was a variable factor in our series. For the lower extremities, it was based on the time from surgery to removal of the cast and beginning weight bearing. In the arm, it was figured from the time of surgery to the removal of the cast and limited function. There was a period of several weeks when a graft may have been solid, but we were overly cautious in prolonging the immobilization.

Other comparable series of bone grafts using tibial bone, such as those reported by Harkins and Phemister,[6] were with the same high percentage in healing and with comparable time elements. We, therefore, do not feel we have anything to offer in reducing the time required for union by using iliac grafts. Our series also compares quite similarly with those reported by others[2, 7, 9] in percentage of union obtained. Our objective, however, has been accomplished; we did not incapacitate our patients further by using a good leg for the donor site.

There were four failures in the 81 cases. Two of these failures were corrected successfully with the second bone graft. The other two failures are still to be repeated at this time. Ninety-five and seven hundredths per cent (95.07%) of this series were successful with one operation. The average hospital stay was between seven and ten days for grafts of the upper extremity. The hospitalization for the tibia and femur grafts was longer and varied with factors unrelated to the surgery. There was little residual pain in the ilium and it did not prevent ambulation, when the grafted area permitted, in a single instance. By the use of the iliac bone, we entirely eliminate the possibility of future complications in a good leg. The operation is no more diffi-

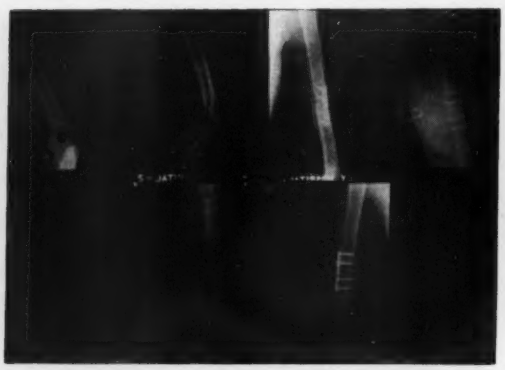

Figure 4. X-rays of a 30-year-old woman with a non-union of the humerus two and one-half months after closed reduction. Successive x-rays show grafts in place and healing in two months.

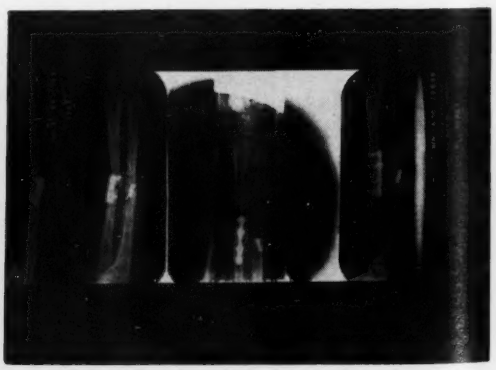

Figure 5. X-rays of a 43-year-old woman with a non-union of the radius three months after open reduction. Graft in place and union in two and one-half months (the x-ray dates showing a three and one-half month interval may be confusing, but actual function was started two and one-half months following surgery).

cult to perform than for any other type of bone graft, and it heals with as much assurance or more than in any other procedure which we have used in the past.

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Ketosteroids in Coronary Heart Disease

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The experience gained by Massachusetts General Hospital Cardiac Department over a period of 15 years from two separate studies has shown that coronary heart disease under the age of 40 is 24 times as common in males as in females.[1, 2, 3] This observation raised the question of the role of male hormones in the etiology of coronary heart disease. This question is reinforced by the observations that females past the menopause are more prone to coronary heart disease,[4] and male castrates are believed to show a lower incidence of the disease in contrast to non-castrate males in comparable age groups.[5] It was on this basis that the Coronary Research Project entered a study of the excretion of urinary ketosteroids.

Urinary ketosteroids contain androgenic material which, prior to Zimmerman's technique, were determined by biological assay methods. The chemical measurement of urinary ketosteroids by the Zimmerman technique (with modifications by Callow et al.,[6] Dobriner et al.,[7] and Talbot[8]) depends upon the red color formation, in the presence of alkali and metadinitrobenzene, by the active methylene group—CH_2CO on position 17 of the steroid nucleus. It should be pointed out that not all androgens are chromogenic, and similarly not all chromogenic material is androgenic biologically. Callow et al.[6] and Fraser et al.[9] believe that chemical measurement of the urinary ketosteroids parallels, in many instances, the biological assay methods. Furthermore, these authors prefer the chemical test since it is easily reproducible and may be expedited with greater facility than the biological tests.

The ketosteroids are thought to be an index of the combined activity of the testes and adrenal cortex in the male and an index to the activity of the adrenal cortex alone in the female.[10] Normal values of ketosteroids excreted in 24-hour urine specimens for males range from 8 to 23 mg. daily (average 14 mg.),[9, 11, 12] and for females from 5 to 14 mg. daily (average 9 mg.). The ketosteroids have been shown to decrease steadily with age[13] and in chronic diseases.[10] There is a transient fall in urinary ketosteroids during acute illnesses.[10]

The purpose of this paper is: (a) to present the findings of an analysis of urinary ketosteroids excretion in 87 young males who had experienced myocardial infarction, (b) to consider the relationship between ketosteroids (androgenic activity) and the etiology of coronary heart disease, and (c) to consider the correlation between ketosteroids and other measurable variables in the coronary disease group.

METHOD AND MATERIALS

As part of a larger and more inclusive study, the urinary ketosteroid excretions were studied in 87 males (average age 38.5 years at time of examination) who had experienced a myocardial infarction prior to the age of 40. These men, without exception, had experienced the episode at least 6 months prior to admission to the Massachusetts General Hospital for study and in all cases except five had returned to some form of activity. These men were compared, using the identical technique of ketosteroid assay, to 50 healthy men between the ages of 20 and 40 (average 28 years).

The coronary disease group was hospitalized for study for periods varying from 24 to 72 hours. The ketosteroid determinations were made on extracts from a 24-hour urinary collection in 63 instances, a 48-hour urinary collection in 21 instances, and a 72-hour urinary collection in 3 instances. The usual precautions of acidity and cool atmosphere were

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adhered to. The two groups will be known as (a) the control group and (b) the coronary disease group. Statistical analyses were done according to Lindquist[14] and/or Arkin and Colton.[15]

RESULTS

I. VALUES OF 17-KETOSTEROIDS IN CONTROLS AND IN CORONARY HEART DISEASE

The total excretion of the crude neutral fraction as expressed in milligrams of sterone per 24 hours of urinary excretion is summarized in Table 1. Figure 1 shows the distribution curve for the coronary disease group. No attempt was made to separate the ketosteroids into alpha and beta fractions as was done by Hamilton and Hamilton,[13] Dobriner et al.,[7] and Salter et al.[16] There is no significant difference between the means of the coronary disease group and the control group.

The difference between the distribution curves of the two groups is barely significant ($p = 0.05$). The distribution curves differ in two major aspects: (a) there are fewer controls than coronary disease patients at the low range values, and (b) there are fewer patients than controls at the upper range values. It is noteworthy that 17 per cent of the patients with coronary heart disease had a 24-hour urinary 17-ketosteroid excretion of below 6.0 mg. sterone, while only 8 per cent of the control group fell in this range.

TABLE 1

URINARY KETOSTEROIDS PER 24 HOURS CONTROL AND CORONARY DISEASE GROUPS

Mg. sterone per 24 hours

	Control Group	*Coronary Disease Group*
Number	50	87
Range	4.9 — 21.6	2.4 — 21.0
Mean ± St. Error	11.13 ± 0.54	10.0 ± 0.42
Mean Age	28.5	38.5

The absolute increase in ketosteroids in the control group may be explained on an age basis for their mean age is 10 years less than the mean age of the coronary disease group (vide infra).

II. CORRELATIONS BETWEEN 17-KETOSTEROIDS AND OTHER VARIABLES

It was thought to be of interest to study the change of 17-ketosteroids in relationship with a few of the other variables studied in this investigation, since it has been reported that ketosteroids diminish with age[13] and that body build has a bearing upon the total excretion of urinary 17-ketosteroids.[13]

The correlations between 17-ketosteroids and other variables are listed in Table 2.

The correlations indicate: (a) a negative correlation between age and 17-ketosteroids, (b) no correlation between 17-ketosteroids and body build, (c) no correlations between 17-ketosteroids and lipids, (d) a positive correlation between 17-ketosteroids and basal metabolic rate, and (e) a negative correlation between 17-ketosteroids and gynandromorphy.

TABLE 2

CORRELATIONS BETWEEN 17-KETOSTEROIDS AND OTHER VARIABLES IN THE CORONARY DISEASE GROUP

Age	−.23 ± .10*
Height	+.02 ± .11
Weight	−.04 ± .11
Ponderal Index	+.15 ± .11
Endomorphy	−.02 ± .10
Mesomorphy	−.09 ± .11
Ectomorphy	−.02 ± .11
Uric Acid	+.03 ± .11
Phospholipids	−.08 ± .14
Cholesterol	+.10 ± .11
Basal Metabolic Rate	+.19 ± .11**
Gynandromorphy	−.19 ± .11**

* Significant
** Barely significant

Because of the suggestions from the correlation data, it was decided to re-examine by other methods the values of urinary 17-ketosteroids excretion in the various decades and in the various physique groupings.

III. AGE AND 17-KETOSTEROIDS

There has been an agreement in the literature concerning the decrease in excretion of urinary 17- ketosteroids with age in healthy groups. The data reported[13, 17] have not lent themselves to statistical analysis, and no reports are available, to our knowledge, on the relationship of 17-ketosteroids to age in a condition such as coronary heart disease. The results from our study in contrast with Hamilton's[13] and Albright's (control) series are included in Table 3.

TABLE 3

17-KETOSTEROIDS AND AGE
(Mg. sterone per 24 hours)

Decade	*No.*	*Hamilton's series*	*No.*	*Control group*	*No.*	*C.H.D. group*
20-29	11	10.8	29	11.7 ± 0.78	6	11.5 ± 2.36
30-39	9	10.1	21	10.4 ± 0.74	49	10.7 ± 0.57
40-49	11	7.7			32	8.6 ± 0.56

There is a significant decrease in the 17-ketosteroids within the coronary disease group ($p = 0.03$) with ageing. In the Hamilton series there is an absolute decrease of urinary excretion of 17-ketosteroids with increasing age. These data confirm the impression gained from the correlations.

IV. PHYSIQUE AND 17-KETOSTEROIDS

Physique was rated according to the somatotype method of Sheldon,[18] thus permitting three physique components to be considered separately. These components are called endomorphy (softness and roundness), mesomorphy (bone and muscle), and ectomorphy (linearity). Each of these three components is given a numerical rating (1-7); accordingly, the values may be employed in calculating correlation coefficients. A complete somatotype profile would consist of ratings in these three variables. Thus, a 3-7-1 would be an individual who possesses three points of

endomorphy, seven points (maximal) of mesomorphy, and one point (minimal) of ectomorphy. He would be considered to be a dominant mesomorph with secondary dominance of endomorphy. Also, for simplification of presentation, a fourfold classification was used:

1. Endomorphs—showing relative preponderance of endomorphy.
2. Mesomorphs—showing relative preponderance of mesomorphy.
3. Ectomorphs—showing relative preponderance of ectomorphy.
4. Mid-Range—showing about equal proportions of three components.

There were insignificant correlations between height, weight, ponderal index, and 17-ketosteroids. In spite of this evidence, it was decided to ascertain the amount of sterone excreted in the urine in 24 hours by each of the dominant physique groups. These results are summarized in Table 4.

TABLE 4
17-KETOSTEROID AND PHYSIQUE GROUPINGS

Physique	*Number*	*Mg. sterone/24 hrs. urine*
Endomorphy	21	9.9 ± 0.95
Mesomorphy	39	10.6 ± 0.66
Ectomorphy	8	8.9 ± 1.35
Mid-Range	19	9.3 ± 0.77

V. 17-KETOSTEROIDS, LIPIDS, BASAL METABOLIC RATE

There appeared to be no correlation between sterone excretion and serum cholesterol, uric acid, or phospholipids. The positive correlation between 17-ketosteroids and the basal metabolic rate may be an expression of the anabolic properties of androgens.

VI. VALUE OF 17-KETOSTEROIDS IN THOSE INDIVIDUALS IN THE SERIES WHO DIED

There were 8 males (Figure 1) whose demise took place since the onset of this study. Fortunately, 17-ketosteroids were taken in these individuals approximately 2 to 4 months prior to their deaths. The mean value of 17-ketosteroids in this group was 7.68 ± 1.02. The difference between this mean and the mean of the total coronary disease group was significant ($p = 0.01$). It was of further interest that half of this group had a sterone excretion of less than 7 mg. per day, 2 to 4 months prior to their demise.

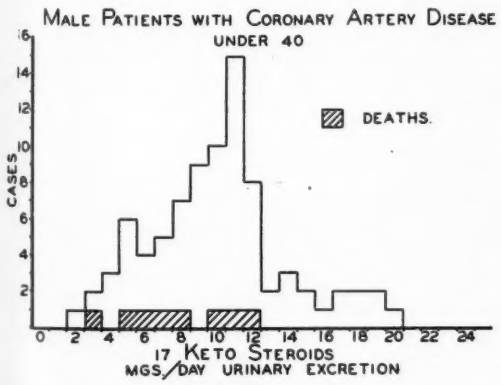
MALE PATIENTS WITH CORONARY ARTERY DISEASE
UNDER 40
DEATHS.
CASES
0 2 4 6 8 10 12 14 16 18 20 22 24
17 KETO STEROIDS
MGS./DAY URINARY EXCRETION

Figure 1.

DISCUSSION

The finding of normal 17-ketosteroids in the coronary disease group would suggest that the patients (with the exception of 5 members) studied in this series should not be classified as members of a chronic disease group since they are active in some form of gainful employment and they do not show signs of congestive failure. Furthermore, the members of the coronary disease group are at least as active as the prisoners described by Hamilton.[13] Admittedly, during the acute phase of a pathological process, there is a rise in 17-ketosteroid excretion for 24 hours, which decreases rapidly for 4 to 5 days,[10] and then gradually rises to the individual's normal value. However, in chronic diseases such as malignancy, sprue, malnutrition, diabetes, and rheumatic disease, Forbes et al.[10] have shown that there is a decrease in 17-ketosteroid excretion. In 82 chronically ill males the average 17-ketosteroid excretion was 6.2 mg. sterone daily, while in 114 chronically ill females the average 17-ketosteroid excretion was 4.4 mg. daily.

This study concurs with other observations in that there is a slight decrease in 17-ketosteroids with increasing age. As far as we know, there are no complete observations on body build and its relationship to 17-ketosteroids. However, Hamilton states that a preliminary analysis of his data revealed that the more "massive" the individual, the greater the 17-ketosteroid excretion.[19] Hamilton further states that he is not certain whether the increased 17-ketosteroids are a result of increased musculature or whether the increased musculature is a result of the 17-ketosteroids.

Our findings are in accord with Hamilton's observations, but, in some respects, are somewhat more definitive. These data show absolute but insignificant differences of 17-ketosteroid excretion in the mesomorphic (muscular) group in contrast with ectomorphic (linear) group. It is of interest that 17-ketosteroids are inversely related to gynandromorphy, for the greater the gynandromorphy, the greater the accumulation of fatty tissue. This may be an expression of an endomorphic physique. Such observations may help to affirm the contention that 17-ketosteroid excretion is dependent mainly on muscle mass. Hamilton[19] has stated that the level of 17-ketosteroid excretion decreases with true obesity. This would confirm these studies indirectly.

The positive correlation between 17-ketosteroids and basal metabolic rate would corroborate the anabolic properties of androgens. As thyroid activity increases within certain limits, the anabolic responses of the organism, including androgenic stimulus, would increase. The reverse would be true in a decrease of thyroid activity. Hamilton[1] has stressed the anabolic properties of androgens, and there is probably a reciprocal relationship between thyroid and testicular activity.

While the mean values are almost equal in the control group and coronary disease group, the distribution of the two arrays differs in two important manners: (a) in the coronary disease group, 17 per cent of the individuals excrete less than 6 mg. sterone daily, while only 8 per cent of the control group excrete less than 6 mg. sterone daily; (b) 24 per cent of the control group excreted more than 14 mg. of sterone daily in contrast to 12 per cent of the coronary disease group. A satisfactory explanation cannot be given in spite of the fact that a Chi square comparing the two distribution curves revealed that these were different ($p = 0.05$).

Another observation which merits attention, but which cannot be explained at this juncture, is the level of excreted sterone in the 8 men who died since the inception of this study. The mean sterone excreted in this group was 7.68 ± 1.02 mg. daily. This value was significantly less than the mean value of daily sterone excretion in the coronary disease group. We could speculate on this observation; is it possible that these men failed to "adapt" in the sense that Selye uses the term.[20] An answer to this would be more possible if the 17-ketosteroids had been fractionated into the adrenal and testicular components.

Another thought which is possible and emphasized by a study now in progress on coronary heart disease in castrates is the observation that the incidence of atherosclerosis and coronary heart disease is markedly diminished in these individuals.[5] Hamilton[1] pointed out an increase in many of the male predominant pathological conditions such as gout, jejunal ulcer, Buerger's disease, hemochromatosis, and coronary heart disease at a time of life when androgenic activity (testicular secretions) is progressively declining. He further noted that these male-selecting diseases are not directly related to the intensity of androgenic activity, but would seem to be dependent upon decreasing androgens for their occurrence.

SUMMARY AND CONCLUSIONS

1. The amount of sterone excreted in the urine during a 24-hour period was determined in 87 males who had experienced a myocardial infarction prior to the age of 40 and whose average age at the time of this study was 38.5 years.

2. There was no significant difference between the coronary disease group and a group of healthy males in the amount of sterone excreted in the urine during a 24-hour period.

3. The urinary sterone excretion per 24 hours decreases with increasing age and gynandromorphy.

4. The urinary sterone excretion per 24 hours appears to be related to body mass and muscular tissue, as evidenced by the greater amount of sterone excreted in the urine in 24 hours in mesomorphs in contrast to ectomorphs or endomorphs.

5. The positive correlation between the daily urinary sterone excretion and basal metabolic rate corroborates the anabolic properties of androgens.

6. The average amounts of urinary sterone excreted daily in 8 men who died of coronary heart disease was significantly less than the average for the whole coronary disease group. It is postulated that this phenomenon is suggestive of failure of "adaption" in the Selye sense.

7. The relationship of the study to coronary heart disease is discussed.

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Indications for Pulmonary Resection

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Indications for thoracotomy and pulmonary resection for cure, palliation, or diagnosis have been greatly increased within fairly recent years due to the safety with which such procedures may now be undertaken. An acceptable operative risk has evolved with the discovery of the antibiotics, the improvement of anesthesia, a better understanding of blood loss replacement, a better concept of pulmonary anatomy and physiology, and improvement of surgical techniques. Various surgeons report a fatality rate of approximately 2 per cent for lobectomy and 5 per cent for pneumonectomy.[30] On the whole, the mortality and morbidity resulting from pulmonary resection compare favorably with those from operations of similar magnitude upon other regions of the body.

With the achievement of acceptable operative risks, resectional surgery and exploratory thoracotomy have become relatively commonplace operations. Yet, all too frequently, localized pathology which lends itself well to excisional therapy, as well as undiagnosed asymptomatic chest lesions, are watched for changes over long periods of time, during which the benefits of early surgical extirpation of these lesions are lost. Exploratory thoracotomy should be undertaken as readily for undiagnosed pulmonary pathology as exploratory laparotomy is performed for undiagnosed or suspected abdominal pathology.

Indications for pulmonary resection may be grouped generally under the following headings:

1. Lesions known to be carcinoma which are not definitely inoperable and lesions in which, although undiagnosed, the possibility of carcinoma has not been ruled out.
2. Suppurative pulmonary disease and lesions in which infection is a serious threat.
3. Selected tuberculous lesions.
4. Miscellaneous group.

1. KNOWN OR SUSPECTED CARCINOMATOUS LESIONS

Bronchogenic carcinoma may be considered to be of two locational varieties—those which occur in the main bronchus or its primary subdivisions and those which arise as peripheral tumors.

The first usually manifest themselves as obstructive lesions of the bronchial tree and eventually by atelectasis of the entire lung or any portion of the lung distal to the obstructing lesion. The patient may remain relatively asymptomatic, or infection beyond the obstruction may result in constitutional symptoms. Often a partial obstruction produced by such a neoplasm is completed in the presence of a superimposed respiratory infection. The diagnosis of unresolved pneumonia in a lung which fails to clear within a matter of a week or two is a most dangerous one.[20]

Single, circumscribed, intrathoracic densities within the lung substance, often discovered in the course of routine x-rays, may well be carcinomatous, although benign tumors, filled cysts and tuberculomas are to be considered. However, approximately 25 per cent of such lesions are malignant,[1, 30] and, although asymptomatic, may have undergone metastatic spread at the time of casual discovery. Three-fourths or more of such asymptomatic carcinomas are resectable, but the resectability rate falls to approximately one-third when symptoms are present.[19] The error of further observation of such an asymptomatic finding, in hope that it is an unimportant lesion, is all too often regretted. There is no possible way to safely diagnose these as benign tumors or rule out their malignant potentialities, nor can a filled cyst be diagnosed by its x-ray appearance. Therefore, the presence of either of these lesions is reason for their removal.

Tuberculomas are usually much more well demarcated than malignant growths, but not necessarily so, and although the presence of calcium in the mass is suggestive of its tuberculous origin, carcinoma can arise at the site of an old tuberculous process. Furthermore, tuberculomas are potentially dangerous lesions with caseous centers from which tubercle bacilli may be shed, and are themselves indication for removal.

When it is realized that carcinoma of the lung has increased rapidly in incidence to become the commonest visceral cancer in the male, with a continued increase in incidence in both sexes anticipated,[10] the necessity of early exploration of all pulmonary lesions in which the diagnosis of carcinoma cannot be ruled out is obvious. Early discovery and removal of such lesions offer the only hope, at the present time, of improving the poor results which exist in the treatment of bronchogenic carcinoma.[5, 18] If resection is possible, a five-year survival rate of 25 per cent can reasonably be expected.[29] More exploratory operations will mean fewer deaths from pulmonary carcinoma.

2. SUPPURATIVE PULMONARY DISEASE AND LESIONS IN WHICH INFECTION IS A SERIOUS THREAT

Suppurative pulmonary disease includes bronchiec-

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tasis, lung abscess, and chronic suppurating pneumonitis. Removal of such primarily involved areas results in cure or improvement of secondary pathological effects on other parts of the lung and other organs.

Bronchiectasis, in addition to the chronic effects of the disease itself, gives rise to numerous serious complications such as lung abscess, empyema, brain abscess, and pulmonary hemorrhage. Medical treatment offers only temporary symptomatic relief and palliation of the progressive, non-reversible pathology. The morbidity and mortality of bronchiectasis and its complications justify resectional surgery. Unilateral and bilateral involvement respond well to surgical resection.[15, 16, 23]

The treatment of acute lung abscess may be nonoperative if the response to antibiotics is satisfactory. However, there is general agreement that chronic lung abscess should be treated by primary lobectomy rather than by external drainage.[28] Chronic lung abscess must be differentiated from the ulcerating type of bronchogenic carcinoma, tuberculous cavities, bronchiectasis with secondary abscess formation, and infected pulmonary cysts—all of which can be diagnosed and treated by resection.

The mortality of drainage of a lung abscess, estimated as low as 12 per cent with the use of antibiotics,[4] is considerably higher than that of resection, and longer lasting morbidity results, often necessitating the wearing of a thoracotomy tube over a prolonged period of time. Furthermore, lung abscesses may be multiple or so formed or located as to make external drainage inadequate or impossible. Recurrence after drainage and the development of bronchiectasis about the abscess site are other factors which may eventually necessitate resection. Thus resection in the first place, with complete removal of the diseased area, is the procedure of choice in lung abscess, especially if malignancy cannot be ruled out.[9, 12]

Chronic suppurating pneumonitis is a progressive low grade suppurative process which fails to respond adequately to antibiotic therapy. The so-called "middle-lobe syndrome"[11, 22] may be included in this group. Because the process tends to extend and cross fissures, resectional surgery should be undertaken relatively early in the course of the disease when it becomes evident that the pneumonitis is not responding adequately to medical treatment. Wide resectional surgery in cases of chronic suppurating pneumonitis has given good results with fatalities of approximately 2 per cent reported.[30]

Lesions which are susceptible to serious infection are exemplified by lung cysts which open into the bronchial tree. Early resection of such cysts is recommended.[24]

3. TUBERCULOSIS

Resectional surgery is becoming more and more prominent in the treatment of tuberculosis. While some advocate early resection of isolated cavities, the tendency has been to submit these patients to long periods of antibiotic treatment, resorting to surgery only if the disease fails to respond adequately to such therapy, or for the removal of the obvious and potentially dangerous residue of the disease in hope of reducing the recurrence rate in these cases. An important and difficult decision is the determination of the time to operate, keeping the safety factor primarily in mind but also endeavoring to avoid prolonging the period these patients must remain hospitalized. Each case must be individualized and the surgical treatment fitted into the long range therapy.

Resectional surgery is replacing to a large extent the time-honored thoracoplasty, by which scale of comparison its merits are weighed. The two procedures are often combined, being performed separately or concomitantly.[6, 26] Many patients who will not accept thoracoplasties are willing to undergo resectional surgery.

Generally accepted indications for pulmonary resection include principal focal areas of tuberculous pathology which can be removed by resection and thus permit a more favorable immunological relationship to be established with the remaining infection, and failures or probable failures following thoracoplasty or other collapse therapy. The latter includes bronchostenosis, lower lobe lesions, tuberculomas, nodular residual tuberculous lesions (especially those in the superior and posterior portions of the pulmonary lobes),[25] tension cavities, giant cavities, tuberculous bronchiectasis, and destroyed lung tissue, often with empyema and bronchopleural fistula.[27] Bilateral apical disease can often be treated successfully by resection bilaterally or unilaterally in conjunction with another measure, such as thoracoplasty, on the opposite side.

Associated suppurative disease or other pathology is often an indication for resection. When the presence of carcinoma co-existing with pulmonary tuberculosis is known or suspected,[14] resectional therapy is mandatory.

4. MISCELLANEOUS GROUP

Numerous and various pathological lesions which do not fit into the above categories are indications for pulmonary resection, such as arteriovenous aneurysms of the lung,[17] areas of severe irradiation fibrosis,[3] focal pulmonary coccidioidomycotic lesions,[13] giant cysts and emphysematous blebs,[2, 7, 21] and occasionally solitary pulmonary tumors which have metastasized from malignant neoplasms elsewhere in the body, the primary malignancy having been re-

moved.[8] Such a solitary pulmonary metastatic lesion appearing some time after removal of the original malignancy cannot be differentiated, in most cases, from a primary lung tumor, and operation is indicated on this basis alone.

CONCLUSIONS

1. Thoracotomy and pulmonary resection are indicated in lesions known to be carcinoma which are not definitely inoperable, in lesions in which, although undiagnosed, the possibility of carcinoma has not been ruled out, in suppurative pulmonary disease or lesions in which infection is a serious threat, in selected tuberculous lesions, and in a miscellaneous group of more rarely encountered pathology.

2. Earlier exploration of lesions in which the possibility of carcinoma cannot be ruled out offers the only hope, at the present time, of improving the poor results which exist in the treatment of bronchogenic carcinoma.

3. Excision of resectable lesions discussed under the various headings will reduce long lasting morbidity associated with such lesions and their complications, as well as reduce the mortality in these cases.

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The hope of freedom depends in real measure upon our strength, our heart and our wisdom. We must be strong in arms. We must be strong in the source of all our armament—our productivity. We all—workers and farmers, foremen and financiers, technicians and builders—all must produce, produce more and produce yet more. We must be strong, above all, in the spiritual resources upon which all else depends. We must be devoted with all our heart to the values we defend. We must know that each of these values and virtues applies with equal force at the ends of the earth and in our relations with our neighbor next door.

Dwight D. Eisenhower

PRESIDENT'S PAGE

Dear Doctor:

It is particularly heartening to see the early activity of the standing committees for the ensuing year. It is profound evidence of individual members' interest. The Committees on Child Welfare, on Control of Cancer, and perhaps others met during the state meeting in Wichita. Since that time there have been meetings of the following committees: Conservation of Eyesight, Control of Cancer, Hospital Survey and Maternal Welfare, and besides these several others including Child Welfare, Constitution and Rules, Medical Assistants, and Study of Heart Disease have conducted business by way of correspondence.

The program of the Kansas Medical Society in any one year is measured by only one yardstick. That measure is not what your officers may do. It is what the individual members do to further the standing of medicine both professionally and from a public relations standpoint. Small groups of members are banded together in standing committees to carry on unfinished business from the preceding year and to foster new projects as the occasion or suggestion arises. I am most sure that your committee chairmen will welcome and study in their committees any worth-while suggestions that may arise in the mind of any member of the Society.

During the year many others of you will be asked to carry out important duties in connection with Society progress. In many instances this will be in the form of individual efforts. In others it will be the efforts of especially appointed committees either from a component society level or the state society level.

May I take this opportunity to express the appreciation of your officers for the excellent interest and activity to date and to encourage a continuation of this effort in the future.

EDITORIAL COMMENT

Kansas Law on Fee Splitting

This JOURNAL did not intend to enter the discussion of fee splitting. Such decision arose not with the view toward evading an issue but because the problem seems not to be prevalent in serious proportions in Kansas. However, the subject is currently of nationwide interest, having been argued both in professional and lay publications, so it was considered appropriate that a conservative, factual review might be printed in this JOURNAL.

The American College of Surgeons is credited with igniting the spark that set off a wave of literature on this subject. Numerous delegates to the American Medical Association's New York convention in June, 1953, believing the controversy brought an unwarranted amount of criticism upon physicians in relation to the small percentage of offenders, offered at least 11 resolutions, all of which in one way or another reprimanded General Hawley. He appeared personally before the committee and argued his case effectively enough that all resolutions were discarded. In their place the House of Delegates agreed that doctors should abide by the Code of Ethics. With such action the subject was concluded.

The A.M.A. Code of Ethics has something to say about fee splitting. Section 6 states in part, ". . . The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical. . . . He (the physician) should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly, directly or indirectly, from any other source."

The above takes on added significance in view of powers vested in the Kansas State Board of Medical Registration and Examination. Under Section 65-1001 of the General Statutes of Kansas 1949, which deals with the medical board, may be found the statement that the board ". . . may, after notice and hearing, revoke the certificate for . . . unprofessional conduct."

Official board rulings are permissible and have the effect of law. Among such rulings is this statement by the board, "A wilful failure to abide by the principles of medical ethics promulgated by the American Medical Association and adopted by this board shall be deemed unprofessional conduct."

There is, in addition to the above, a little known statute in Kansas which deals directly with this subject. Refer again to the General Statutes of Kansas 1949, Sections 21-2440 to 21-2443 which have been in effect at least since 1915. These state in part, "It shall be unlawful for any physician or surgeon to pay or offer to pay to any other physician or surgeon or to any person in his behalf, either directly or indirectly, any fee, money or thing of value of any kind in consideration of such other physician's or surgeon's bringing to him, or agreeing or promising to bring to him, for treatment, any patient, assisting to treat or operate upon any such patient so sent, or advising or agreeing, promising or proposing to advise any patient to consult him, or to be treated or operated upon by him, or assisting to treat or operate upon any patient so advised. . . ."

Following sections declare comparable practices between hospitals and physicians to be equally illegal. Violators of this act, ". . . upon conviction shall be punished by a fine of not more than $500 and by imprisonment in the county jail for not exceeding six months, or both, and such conviction shall operate as an annulment of the license of such convicted person to practice as a physician and surgeon in this state."

This law also states how several physicians may legally serve a patient during a single illness, as follows: ". . . It shall not be unlawful for such physicians or surgeons to pay or receive such fee, money or value where full disclosure as to the amount to be paid and received shall have been made to the patient or person liable for the fees to be charged for the treatment of such patient before such patient or person shall have paid or agreed upon the amount of the fees to be paid by them."

Kansas law, therefore, spells out exactly what the American Medical Association holds in its Code of Ethics. The Kansas Medical Society has always held the same position. There is no fault as long as the patient knows who he is paying, how much, and what for. It is as simple as that, and because the vast majority of Kansas doctors have always followed that custom, mention of this subject at the present time is not intended for criticism but rather as a historic review of Kansas regulations in this regard.

Treaty Law

Everyone has heard of the dangers of treaty law and of the proposed Bricker resolution which calls for a constitutional amendment declaring that treaties cannot be binding upon the United States if their content is contrary to the Constitution. This resolution appears to be well on its way to passage,

and one of the great hazards to American democracy can thereafter be effectively controlled.

Previous reports have carried the story of the International Labor Organization (the I.L.O.) and its world convention where a series of tenets on social security were approved. Memory has it that nine such principles were included in one sweeping action. The majority spelled out principles with which no one could take serious exception, but included was an endorsement of socialized medicine. The important effect, however, came from an attached resolution also passed by the I.L.O. to the effect that whenever any nation ratified any four of these tenets all nine shall have been considered adopted by such nation.

In the United States it would require a message from the President and a yes vote of two-thirds of the members of the Senate present at the time of action. Power of this kind has serious possibilities, and the Bricker resolution is designed to curb this danger. Another example, we are told, comes from a presently active treaty with Italy to the effect that no state, regardless of its licensure law, may refuse practice privileges to any Italian physician who desires to practice in this country. This was never passed as a law. It was simply a hidden clause in a treaty which the Senate ratified.

During the Conference of Presidents in New York last month, a speaker developed this subject with some interesting historical data. Printed copies of this talk are not available at the time of this writing, so the material may not be accurate as far as specific points are concerned. However, the general effect is correct and will be obvious even though the details may not be exactly as stated.

One of the earliest examples of the use of treaties as substitutes for law comes from a federal case involving the state of Missouri. The incident dates back probably to the 1880's, during which time many migratory birds rested in Missouri waters during their flight between Canada and southern locations. At this time Missouri either had no laws governing the preservation of wild life or they were so loosely enforced that great numbers of migratory birds were annually destroyed. The problem became so severe that fear was expressed that certain species of game birds would become annihilated.

The federal government then passed a law restricting the destruction of migratory birds. Missouri immediately took the question to court on the grounds that the action was an invasion of states' rights. The federal court ruled in support of Missouri's contention and declared further that the law was unconstitutional. The federal prosecutor then advised that the question not be taken to the Supreme Court of the United States because of his certainty that the decision of the lower court would be upheld.

He elected instead to solve the problem by way of a treaty and in subsequent negotiations with Canada declared that certain birds could not be killed during the migratory season. The Senate ratified the treaty, and this action was held by the Supreme Court of the United States to be constitutional.

Another case, the name of which is not now available, brought the question squarely to a decision in which the United States Supreme Court declared that the treaty making power does not come out of the Constitution but comes from above the Constitution. This creates a power within the Senate to pass legislation under treaty programs on subjects they have no right to act upon according to the Constitution.

The above discussion is not just a rhetorical argument. It represents and has represented a frightful threat against democracy. Under existing conditions anything, without any limit whatever, can be passed if presented in the form of a treaty so long as two-thirds of the members of the Senate present at the meeting vote in favor of the action. Therefore, the Bricker resolution should be of outstanding interest to everyone in the nation, and each person should individually urge passage of this particular resolution according to all his available influences.

Public Relations in Atchison County

The medical profession of Atchison County received an unusual tribute on Sunday, May 17, when a section of the *Atchison Globe* was issued in their honor. When a newspaper of high journalistic standing, such as the *Atchison Globe,* devotes an entire section to health and medical care, that fact itself speaks for the community interest in the subject.

On the other side, as an expression of the physicians' interest in local activities, each member of the Atchison County Medical Society contributed an article to the section on some topic pertaining to medicine. Possibly the matter of public relations was not considered by anyone involved, but from this editor's viewpoint the special section did more to show the people of Atchison that the medical profession is interested in them than could any number of expressly labeled public relations projects.

The physicians' articles were concise and factual. Each covered one phase of medical care, such as the symptoms and treatment of a particular disease, progress in the care of the sick, etc. Specifically, the following subjects were covered: history of the Kansas Medical Society, Dr. Edwin T. Wulff; modern care of the sick, Dr. Spencer Fast; tuberculosis, Dr. A. Whitaker; diseases of all ages, Dr. John Griffith; si-

nus diseases, Dr. F. I. Stuart; pathology, Dr. Ira Morrison; care of the eyes, Dr. E. J. Bribach; history of the Atchison County Medical Society, Dr. Winstan L. Anderson; infantile paralysis, Dr. Wayne Wallace; medical charges, Dr. J. H. Thompson; radiology, Dr. Frank Bosse; medical economics, Dr. G. A. Patton; surgery, Dr. Charles S. Brady, and immunizations, Dr. Robert O. Brown.

The staff of the *Atchison Globe* wrote stories to tell about activities of the county medical society, operation of the hospital, the value of laboratory procedures, public and school health programs. They told also of activities of the Woman's Auxiliary to the Atchison County Medical Society and the Atchison County Medical Assistants' Society. Advertisements in the section, carrying signatures of various businesses in the city, paid tribute to the medical profession.

In a lighter vein, a staff writer gave a more personal view of the Atchison physicians under the caption "Yes . . . They're Human! Your 'Doc' is a Guy Pretty Much Like You." Since it seems such a warm and sincere tribute, the article is reprinted below:

Most everyone knows Atchison county's doctors, professionally.

That's because we need 'em, and use 'em.

But how are they when they're "off the job?" What kind of citizens do they make? Church members? Family men?

Well, they're pretty much the same as the rest of us in these categories.

(Some of 'em are better!)

WHERE THEY GO TO CHURCH — Atchison county physicians worship in the Presbyterian, St. Benedict's, St. Joseph's, Methodist, Trinity Episcopal and Christian churches. Several are active in an official capacity, serving on boards and committees.

WHAT KIND OF FAMILY MEN—As fathers, they have 36 children and four grandchildren. They're as interested in the problems of Atchison youth as you are.

MILITARY SERVICE? Plenty. Among them, they have served 31 years in the armed forces.

GOOD CITIZENS? They are on boards and committees of the YMCA, American Legion, VFW, Fellowship club, Kiwanis, Rotary, Atchison County Guidance Clinic, Elks, Knights of Columbus, Boy Scouts, Atchison County Public Health association, Atchison board of education, Chamber of Commerce, Knights Templar, Shriners, Masons, Odd Fellows.

DO THEY EVER RELAX? Uh huh. Their hobbies include photography, electronics, woodworking, stamp collecting, painting, gardening, Soap Box derby, hunting, fishing, ceramics, airplanes, golfing, and

SERVICE SEPARATIONS

As a service to physicians and communities in this state desiring additional medical personnel, the Journal of the Kansas Medical Society will publish in this column each month the names of medical officers who will shortly be separated from the armed forces. These are men who volunteered from Kansas, and many of them will probably be interested in finding locations in this state. Anyone interested in contacting these physicians may write to the address here given.

Claude D. Baker, M.D.
4172 Menlo Drive
Wichita, Kansas

William W. Benefiel, M.D.
P. O. Box 105
Medicine Lodge, Kansas

Ralph S. Crawshaw, M.D.
2113 Potomac Drive
Topeka, Kansas

James E. Crockett, M.D.
1919 Olathe Boulevard
Kansas City, Kansas

Albert F. Crumley, M.D.
619 North Main
Ottawa, Kansas

Karl A. Erhlich, M.D.
226½ West Central
El Dorado, Kansas

Donald R. Germann, M.D.
4603 Melvin Street
Kansas City, Kansas

Dan Wesley Hoebert, M.D.
227 Poplar
Halstead, Kansas

Erwin M. Janzen, M.D.
120 Southwest 2nd Street
Newton, Kansas

Maurice H. Jennison, M.D.
4136 Adams
Kansas City, Kansas

Warren L. Krump, M.D.
312 Northeast Avenue
Oberlin, Kansas

Glenn A. Lessenden, M.D.
1309 Ohio Street
Lawrence, Kansas

Lester E. McGonigle, M.D.
Potwin, Kansas

John W. McKay, M.D.
3916 Willow Drive
Wichita, Kansas

Charles W. Merten, M.D.
630 Santa Fe
Augusta, Kansas

William S. Mowrey, M.D.
Luray, Kansas

William L. Padgett, M.D.
301 South Maple
McPherson, Kansas

Richard V. Polson, M.D.
722 South Grove
Wichita, Kansas

Marion A. Throckmorton, M.D.
1026 Perry
Wichita, Kansas

Richard N. Todd, M.D.
916 West Pine Avenue
El Dorado, Kansas

S. B. Whittenberger, M.D.
6029 Delmar
Mission, Kansas

whenever they can (like all of us) they enjoy vacations with their families.

DO THEY TRY TO IMPROVE THEMSELVES? Here's what they belong to, for continuous study and improvement in their profession—College of Surgeons, American Medical Association, Kansas Medical Society, Atchison County Medical Society, American Academy of General Practice, American Association of Railroad Surgeons, Military Surgeons of the U. S., Society of Aeronautics Medicine, Missouri Pacific Medical Association, Kansas Academy of General Practice, Industrial Medical Association, American Trudeau Society, American Physicians Art Association, Kansas University medical faculty, American College of Allergy, American Academy of Allergy, American Society of Anesthesiologists, and they have taken or attended approximately 90 post graduate medical courses and conventions in the last five years!

WHAT DOES ALL THIS MEAN? We asked one "doc." He said: "It means we thoroughly like Atchison, and when something needs boosting, look us up."

Congratulations, Kansas

According to Mr. Miles Pulford, executive director of the Kansas Division of the American Cancer Society, Kansas was the second state to go over its quota in the recent drive for cancer funds. The Kansas quota was $223,000, and this amount was accumulated on May 6, a record surpassed only by the state of Delaware.

Kansas had organized drives in all 105 counties. Mr. John T. Andrews, state campaign chairman, with the co-operation of various leaders in the counties, is to be commended for his effort.

Marked with unusually high spirit, the cancer drive in Kansas raised more money during this campaign than ever before. Radio and newspaper co-operation, as well as printed material available to every Kansan during the month of April this year by the cancer society, stimulated enthusiasm never before attained by so large a group.

Eighty-one counties reached their goal, some going well over the top, with Wallace County for the second consecutive year being the first to report a full quota.

To date Kansas has surpassed its quota by more than $50,000. Of the total amount contributed, 40 per cent goes to the national office of the American Cancer Society. Of this 40 per cent, 25 per cent is used wholly for research and 15 per cent for the national program of education and service. Sixty per cent of the total amount collected remains in the state from which the contributions were received for research, education, and service at the state level.

Kansas physicians will be particularly pleased with this good record since their interest in cancer will not abate until the secrets of cause and cure are known. They are grateful for the educational advantages offered them through publications issued by the cancer society and through the two-day postgraduate courses presented as the Annual Mid-West Cancer Conference.

Distribution of Gamma Globulin

A detailed plan for allocating available supplies of gamma globulin in Kansas was announced recently by the Kansas State Board of Health. The substance is available to physicians for clinically diagnosed cases of polio and for familial contacts between 1 and 20 years of age and pregnant women, regardless of age.

A series of hospital depots has been set up throughout the state. The hospital depot may, on report of the case and receipt of a list of the names, ages, and weights of the familial contacts, administer gamma globulin to these individuals. In instances in which the physician deems it desirable, the depot will furnish the physician a sufficient amount for administration to family contacts. Administration at the depot is advisable, however, to avoid waste since gamma globulin is received in 10 cc. vials. The recommended dosage is 0.14 cc. per pound of body weight. The depot is authorized to charge $1.00 per dose to cover the cost of administration.

No gamma globulin should be administered to the families of suspected cases, nor should it be given to the families of patients whose original illness was not recognized within the first week. In the latter case, administration would be too late to be of value. For the same reason it is also desirable to avoid use of gamma globulin in familial contacts who show temperature elevation, malaise, headache, stiff back, or stiff neck at the time of recognition of the initial case.

Kansas has been allotted less than 3,000 average doses for a population of almost 2,000,000 people. Distribution of gamma globulin has been planned by the Committee on Child Welfare of the Kansas Medical Society, the University of Kansas Medical Center, the Local Health Officers' Association, the Kansas Pharmaceutical Association, the Kansas Hospital Association, the Red Cross, the National Foundation for Infantile Paralysis, and the Kansas State Board of Health.

If polio threatens any community in serious epidemic proportions, the state advisory committee will attempt to secure additional allotments of gamma globulin from the Office of Defense Mobilization, which controls the national pool. A small extra emergency allotment has already been provided for use at Prairie Village, where the first serious 1953 outbreak of polio in Kansas has occurred.

The hospitals at which gamma globulin depots have been set up, listed alphabetically by towns, are as follows: Atchison, Atchison Hospital; Coffeyville, Coffeyville Memorial; Colby, St. Thomas; Concordia, St. Joseph's; Dodge City, Trinity; El Dorado, Susan B. Allen Memorial; Emporia, Newman Memorial County; Garden City, St. Catherine; Great Bend, St. Rose; Hays, St. Anthony's; Hutchinson, Grace; Iola, Allen County; Kansas City, Bethany and University of Kansas Medical Center; Lawrence, Lawrence Memorial; Liberal, Epworth; Manhattan, St. Mary; Norton, Norton County; Pittsburg, Mt. Carmel; Pratt, Pratt County; Sabetha, St. Anthony Murdock Memorial; Salina, Asbury; Topeka, Stormont-Vail; Wichita, St. Francis; Wichita, Wesley.

Kansas Heart Association Meeting

The annual meeting of the Kansas Heart Association was held at the Hotel Broadview, Emporia, on May 16. Dr. Lee H. Leger, Kansas City, was installed as president for the year ending July 1, 1954, and the following additional officers were elected to serve with him: president-elect, Dr. Clarence W. Erickson, Pittsburg; vice-president, Dr. G. Loren Norris, Winfield; secretary, Mr. Frank Sullivan, Topeka, and treasurer, Mr. Willard J. Breidenthal, Kansas City.

It was reported that a total of $26,664.94 had been recorded in the 1953 campaign. Of this amount, $16,332.16 came from contributions, $2,784.79 from memorial gifts, $395 from memberships, and $7,152.99 from pledges not yet fulfilled.

Board of Health Meets

Dr. H. Penfield Jones, Lawrence, was elected president of the Kansas State Board of Health at the annual meeting of the board held at Topeka on June 12. Dr. Dick B. McKee, Pittsburg, was named vice-president, and Dr. Thomas R. Hood was chosen to continue as executive secretary.

Physician members of the board and the dates on which their terms expire are as follows: Dr. Jones, 1954; Dr. McKee, 1955; Dr. E. A. McClintock, Topeka, 1955; Dr. Robert C. Polson, Great Bend, 1956; Dr. H. S. O'Donnell, Ellsworth, 1954. Others on the board are: Mr. Ben L. Williamson, Troy, sanitary engineer, 1955; Mother Mary Anne, Wichita, representing hospitals, 1956; Thomas P. Crispell, D.V.M., Parsons, 1956; George M. Coffey, D.D.S., Ulysses, 1954, and Mr. Wilber Murray, Hutchinson, representing pharmacists, 1954.

The board voted to discontinue running serological tests for industrial purposes on August 1, 1953, since the members felt that the expense of such tests should be borne by the industry concerned. Industries requiring serological tests have been asked to arrange to have the work done at commercial laboratories after the effective date of the ruling.

BLUE SHIELD

Expediting Your Blue Shield Payment

Every Kansas physician who participates in the Blue Shield program will soon receive a reproduced service statement with comments on the side indicating the leading causes for occasional delay in Blue Shield payments. Some word of explanation here may be helpful in understanding these reasons.

1. *No indication as to whether service is to member, father, son, mother or daughter. Birth date is omitted.*

Obviously, the name of the patient is necessary; his relationship to the member and his age should be indicated so that his eligibility for service may be determined. Every unmarried child of a member is considered to be a part of the family membership until he reaches the age of 19; then it is possible to set up a sponsored membership of his own. While he is still a part of the family group, he is eligible for all benefits available to single members.

2. *The membership number is omitted or incorrect.*

The membership number is desirable but not entirely necessary; a claim should never be held up because of the lack of this information. If correct names and addresses are given, the membership can usually be located in the central office. Patients should be urged to carry their Blue Cross-Blue Shield membership cards with them at all times, however.

3. *Diagnosis omitted.*

Diagnosis is of prime importance; in hospital cases the Blue Cross requires that the discharge diagnosis be included before payment can be made. If the Blue Shield claim is submitted before the discharge date, the admitting diagnosis will suffice. Services available under Workmen's Compensation or any other public law are not payable by Blue Shield; therefore, it is important that this item be checked.

4. *Type of surgery and date omitted.*

The type of surgery and date it is performed are probably as important as any other piece of information on the report. Enough space is allowed for the

usual procedures, but if more is needed it is desirable to turn the report over and use the other side for detailed explanation. If doctors and their assistants would remember that staff members handling cases are all lay people who are continuously striving to familiarize themselves with medical and surgical nomenclature, more simple descriptions of procedures would probably be the result. This would expedite pricing and approving. The date of surgery, when omitted, can sometimes be secured from the Blue Cross case, but often the physician's report reaches the office before the discharge date and the hospital has not sent in its report. This must be available before a case can be approved because the experience must be checked to eliminate the possibility of duplication in payment.

5. *Type of fracture not indicated or reduction not noted as open or closed.*

In fracture cases, payment is made on the basis of the type of reduction necessary. In most instances an open reduction is payable at twice the amount allowed for a closed reduction; compound fracture reductions are payable at one and one-half the amount listed.

6. *Accidental injuries not described. Sutures not numbered.*

Many physicians wonder why Blue Shield is so determined to know the number of sutures required to close a wound. This is the only way that an equitable payment can be determined by staff members without submitting a case to the Review Committee. (This is an appointed committee of three physicians meeting weekly to adjudicate difficult cases.) Payment for suturing is made on the basis of $5.00 for the first stitch and $1.00 for each stitch thereafter. In severe accidents where extensive lacerations occur, a complete description of the necessary repairs is helpful, and individual consideration of the Review Committee will be required.

7. *Date of x-ray omitted, also information as to original or re-check.*

Diagnostic x-ray must be given within 30 days of the accident to be available. Re-checks are permitted up to the $25 annual maximum, if necessary to determine the course of fracture healing.

8. *Date of accident omitted in emergency treatment.*

In submitting claims for treatment of minor injuries, the date must be included since the $5.00 emergency payment is available only if care is given within 24 hours of the time of the accident.

9. *Omission of date and type of surgery by anesthesiologist.*

When an anesthesiologist submits his own service reports, he should always be sure to include the date of surgery, kind of surgery, and by whom performed. Payment can now be made to the anesthesiologist on submission of a claim, even though the claim for surgery has not yet been submitted, if all the necessary information is included. If the wrong amount is paid, an adjustment can be made at a late payment date.

10. *Omission of date of admission and discharge.*

A claim for non-surgical services must include the dates of admission and discharge. Under the existing membership agreement, no payment can be made for the first and last days of hospitalization. Members are entitled to payment of $5.00 for the second, third and fourth days of hospitalization and $3.00 per day up to 30 days. If a longer hospitalization is necessary, payment can be made at $2.00 per day for an additional 60 days, making a total of 90 days available.

11. *Omission of necessary information in radiation therapy.*

When malignant conditions require radiation therapy, full information should be submitted, including the number of treatments and whether or not it is a full series. Subsequent series are payable at one-half the original allowance.

12. *Omission of signature, or signature by some other agent.*

The busy physician probably wonders why Blue Shield insists that his signature be affixed to all claims. This may be an important consideration in Insurance Department audits of Blue Shield records. The service report contains professional information which should be submitted only over the signature of the physician giving the service. This is one small moment of a doctor's busy day which Blue Shield considers it necessary to require in return for prompt payment of all cases.

The volume of cases handled by Blue Shield has increased considerably since the first case was paid in 1946. Approximately 350 cases are processed for payment every working day of the month, and payments are made twice each month. A quick look at every service report before it leaves the doctor's office to be sure that all possible information has been given will expedite approval and payment.

The average person consumes approximately 1,550 pounds of food annually, according to the National Dairy Council.

Clinical Pathological Conference*

CASE PRESENTATION

The patient, a 25-year-old married Negro female, was admitted to KUMC September 25, 1952, and expired October 1, 1952.

The patient was admitted to the emergency room unable to give a reliable history and with no palpable pulse, unobtainable blood pressure, and heart rate of 160 per minute. There had been dysuria and abdominal and left flank pain for four days prior to admission. The patient had received penicillin at another hospital as an outpatient 48 hours prior to admission, and 24 hours prior to admission she had again received penicillin intramuscularly.

Subsequent history obtained from the patient's husband revealed intermittent episodes for the past three or four months of nausea, vomiting, upper quadrant pain, and constipation relieved by cathartics. The patient's husband had been out of town for the past few days and he was not certain of any of the history. The patient described having a miscarriage approximately three weeks prior to admission.

At the age of 16 years the patient suffered severe laceration of the urinary bladder during a labor and delivery. She subsequently had had four operations on her bladder.

Upon admission, the patient was in a state of extreme dehydration and circulatory collapse. Following bilateral surgical exposure of superficial leg veins and infusion of intravenous fluids and two units of plasma, the blood pressure was 140/90. Chest and lungs were negative upon physical examination, the sounds were of good quality, without murmurs and having a rapid regular rate. The abdomen was moderately distended and tender throughout, with pronounced left flank tenderness and left CVA tenderness. The rectal examination was negative. Pelvic examination revealed extensive scarring of the anterior portion of the vaginal vault.

Laboratory tests on September 26, 1952, showed acid urine of specific gravity 1.010, albumin one-plus with urine loaded with pus and having some amorphous urates on microscopic examination. Blood examination showed 3,700,000 rbc, 9450 wbc with a differential count of 74 polys of which 70 were filamented, 24 lymphocytes and 2 monos. Hemoglobin was 69 per cent. Wassermann and Kahn were negative. Blood NPN was 62, sugar 140 mgm. per 100 cc., sodium 138 meq., chloride 104 meq., CO_2 18.5 meq., serum amylase 98 mgm. per 100 cc.

On September 29, 1952, the urinalysis was essentially the same; rbc 4,280,000, wbc 25,000; hemoglobin 82 per cent; polys 87, 73 filamented; lymphocytes 8; monos, 3; meta., 2. Blood NPN was 50, creatine 2.2, sugar 265 mgm. per 100 cc.; CO_2 15.4 meq., sodium 135 meq., potassium 5.4 meq., chloride 107 meq.

Though a Levine tube was passed in the hospital, the patient continued to vomit and had a persistent tachycardia with blood pressure 110/70. The temperature spiked to 103° rectally.

Therapy included catheter drainage, intravenous fluids, one-sixth molar sodium lactate, blood, intravenous terramycin, and penicillin.

On September 28, 1952, a Miller-Abbott tube was passed through the pylorus, but this was pulled out. A later attempt to pass it through the pylorus was unsuccessful. Blood pressure remained at hypotensive levels, and the temperature spiked to 105°. The patient continued to vomit liquid greenish material despite gastric suction. The fever continued its septic pattern and the patient's condition worsened with death occurring October 1, 1952. Rectal temperature was 108° and blood pressure 80/60 approximately one-half hour before death.

Dr. Mahlon H. Delp (medicine), chairman: The history may be briefer than we would wish, but this patient came to the emergency room with some people who did not know too much about her history. The history essentially was of rather vague abdominal pains for three to four weeks, followed by the onset of acute abdominal pain which was not necessarily diffuse but rapidly became diffuse.

She was seen as an outpatient at one of the other hospitals in town, given penicillin, and returned home. Subsequently she was seen by a physician whom she called, and he gave her more penicillin. The patient presented herself at the emergency room here essentially in shock but still able to talk.

We are not certain just how reliable the history gained from the patient at that time was, but since she was the sole source of information, we accepted it. She did state that three weeks prior to the onset of this illness she had had an abortion from which she thought she was recovering satisfactorily. Whether or not she was, perhaps, becomes a pertinent matter in this history.

Of significance to the past history is the fact that at the age of 16 this patient went through a rather severe form of labor and suffered a laceration of her bladder. Following that, she had several operations on the bladder. That perhaps becomes of some significance.

On physical examination here, the patient was in

* From the University of Kansas Medical Center. Edited by Glen R. Shepherd, M.D., and Mahlon H. Delp, M.D., from recordings of the conference participated in by the Departments of Medicine, Obstetrics and Gynecology, Pathology, Radiology, and Surgery (Urology), and the junior and senior classes of medical students.

shock, as has already been stated—that is, she had a rapid pulse and a blood pressure that was not measurable. However, she was fairly alert. She had mild distention of the abdomen with some diffuse tenderness. Nothing is stated in the record regarding the degree of tenderness nor the findings upon palpation. I think it might be well to point out that those findings might be altered in a patient who was in cardiovascular collapse.

There was nothing too significant in the findings of Dr. Critchfield's pelvic examination later in consultation.

You will notice that in the laboratory work the urine did have pus cells. The white count was not particularly elevated—9450 cells is not an elevation. The hemoglobin was 69 per cent. There is nothing else significant. Someone might question these blood sugars, but I believe you would have to accept the fact that they were taken when the patient was getting intravenous glucose. It does not mean, in my opinion, that the patient had diabetes. Later laboratory findings were not materially changed except that the white count increased. The patient in the meantime had received blood transfusions, and her hemoglobin was somewhat elevated, too.

The patient did not do well in spite of treatment, as outlined in the protocol, and died shortly after admission with extremely high fever.

Any questions?

Question: Was there a positive blood culture at any time?

Figure 1. Flat KUB film of abdomen showing coils of small gut gas.

Dr. Delp: No.

Dr. Galen M. Tice (radiology): Films of the chest show only a high or elevated diaphragm, without evidence of cardiac or pulmonary disease.

The abdomen was filmed at the same time and shows gas in the transverse and ascending colon and numerous coils of small gut gas. There is no gas in the rectum. Differential diagnosis of the causes of gas in the small intestine lies between ileus and an obstruction.

X-rays of the abdomen a few days later show only dilated coils of small gut.

Dr. T. K. Linn (medicine): The electrocardiograph shows only a sinus tachycardia and contributes nothing to the diagnosis.

DIFFERENTIAL DIAGNOSIS

Mr. Gary Lee* (senior medical student): I would like to present this case today from the standpoint of a medical student seeing the patient for the first time in the emergency room.

When she entered the emergency room she was in clinical shock. There was tachycardia, no pulse, and unobtainable blood pressure. The heart rate was 160. The only information we have is that she had dysuria, abdominal and left flank pain four days prior to admission, and that on two occasions she had received shots of penicillin.

We should run through the differential diagnosis of shock.

Traumatic shock can be ruled out very easily by cursory examination. There is no evidence of crush wounds, compound fracture of extremities, skull fractures, or burns. Psychic shock certainly would not produce this picture. There is no history of any preceding surgery. Hemorrhagic shock again is easily ruled out by examination. There is no history of poisoning (for example, phosphorus). There is no history of acute alcoholism nor can we smell any odor of alcohol.

Coronary thrombosis usually gives a history of chest pain.

A ruptured ectopic pregnancy could produce this picture. We have no history of her menstrual periods, so we can't rely on that point. However, later on, no mass was found upon pelvic examination. But at this point we can't rule it out.

Pulmonary embolism would produce sudden chest pain and other findings.

Acute intestinal obstruction is a possibility.

Some overwhelming infection certainly is a possibility.

Lastly, general peritonitis certainly can lead to this picture.

* Lee received his M.D. in June, 1953.

The patient was taken up to the ward then and given intravenous fluids and two units of plasma, the general measures of treatment for shock. On examination, after her blood pressure had risen to 140/90, all the positive findings were located in the abdomen. These included some distention and tenderness throughout the abdomen, with pronounced left flank tenderness. The temperature was elevated also.

This must go along with a clinical picture of peritonitis, as does the vomiting and tachycardia.

She certainly had abdominal tenderness and distention. I assume there were no bowel sounds, and that would indicate paralytic ileus, confirmed later by x-ray findings.

Obviously, it's a bacterial infection and it's peritonitis. The one-plus albumin and much pus in the urine, together with the physical findings, indicates some type of kidney infection, either pyelitis or pyelonephritis. Amorphous urates are found in febrile conditions, so they don't help us beyond that fact.

The fact that the white blood cell count was below 10,000 could be a disturbing factor, but I believe that we can explain it on the basis of the fact that this is an overwhelming infection, and in overwhelming infections you can actually get a depression of the bone marrow.

Having determined the diagnosis of peritonitis and some type of kidney infection (either pyelitis or pyelonephritis), we should consider a differential diagnosis of peritonitis. We have no history of appendicitis, so we can rule it out. The history does not indicate perforation of a viscus.

Gonorrheal salpingitis could be a possibility except that no masses were found in the adnexal areas.

Peritonitis could be due to trauma (such as perforation of the intestine). There is no history of trauma.

Diverticulitis with a perforation certainly is a possibility because it usually perforates in the sigmoid or in the left lower area of the abdomen. A perforation of Meckel's diverticulum is a possibility.

Ruptured tubal ovarian abscess could be a possibility, as could puerperal sepsis or postabortal sepsis.

Then the husband furnished further information. We learned that the patient had had intermittent episodes of nausea and vomiting for the past three or four months, along with upper quadrant pain and constipation—all suggesting pregnancy. Then the husband stated that this patient had had a miscarriage approximately three weeks prior to admission. In other words, there is a possible four-months pregnancy terminating in an abortion. Then we also get this history that at the age of 16 she had a lot of trouble during a labor and her urinary bladder was lacerated, and that subsequently the patient had four operations on the bladder. What would require four operations? She could have had a vesicovaginal fistula which constantly required repair.

The etiology of this peritonitis is the disturbing factor. Since we have the history of an abortion and of urinary bladder trouble, we can approach it from two directions, namely, postabortal infection and kidney infection.

If it were postabortal infection with pelvic cellulitis, physical examination of the rectum and vagina should reveal the broad ligament to be thickened. The absence of this finding rules out pelvic cellulitis.

A pelvic abscess following the abortion should have produced some mass or tenderness in some areas of the pelvis. There could have been an extension of the postabortal infection through the lymphatics into the peritoneum.

Thrombophlebitis certainly is a possibility, because on pelvic examination many times nothing can be palpated. And it happens that the vein most commonly involved is the ovarian. If the left ovarian vein were involved in the thrombophlebitis, a kidney infection could be produced because the left ovarian vein empties into the left renal vein. The thrombophlebitis could pass up the left ovarian vein into the left renal vein, into the kidney pelvis, and possibly into the rest of the kidney.

We could explain the peritonitis also by a blood stream infection from the thrombophlebitis. If we stick to this diagnosis of postabortal infection, the extension was through the lymphatics into the peritoneum.

The other possibility of infection is on the basis of a pyelonephritis. Pyelitis or pyelonephritis can accompany pregnancy. There may be dilatation of the ureter with stasis of urine during pregnancy. Infection can either ascend from the urethra or it can come from the lymphatics. It just so happens that the left ureter is usually infected first since it lies closest to the bowel.

If this is not a postabortal infection, how the kidney disease is related to the peritonitis is very difficult for me to explain. As far as etiological agents are concerned, B. coli is the most frequent in kidney infections. Staphylococci and streptococci are possibilities.

If this were postabortal, anerobic streptococcus is the most common organism. It could be due to staphylococcus or to aerobic streptococcus, E. coli, or gonococcus.

The patient became worse and finally expired. Obviously, the bacterial infection was overwhelming. How did she die? There are two mechanisms for death from peritonitis. One is a toxemia due to bacterial toxin. Another is shock—the peritoneal tissue is damaged, with liberation of histamine or a histamine-like substance. This leads to dilatation of the capillaries and loss of fluids, resulting in progres-

sive circulatory failure due to a reduced venous return and a decreased cardiac output.

As for my final diagnosis, though the history is unsure, it certainly could be a postabortal infection. And I like the possibility of thrombophlebitis leading to a kidney infection, or to direct extension of the bacteria to the peritoneum. If we can't accept the history, I just can't explain how the infection led from the kidney into the peritoneum.

Dr. Delp: You think the patient had peritonitis, but you are a little indefinite about the pathogenesis? What is your best possible diagnosis?

Mr. Lee: Postabortal infection with peritonitis, and I believe the patient also had pyelonephritis.

CLINICAL DISCUSSION

Dr. Delp: I want to ask Dr. Critchfield just what he did find when he examined the patient?

Dr. Thomas Critchfield (gynecology and obstetrics): I saw this patient on one occasion, I believe the evening before she died. She was moribund at the time, apparently quite septic and toxic. I did only a rectovaginal examination with the patient lying in the bed, and I was unable to insert a speculum. We don't know anything about the appearance of the cervix nor whether there was evidence of a recent instrumentation, whether there was a discharge and, if there were a discharge, what the nature of it was.

Due to the rather marked distention and tension of the abdomen, it was impossible on bimanual examination to outline adequately the upper pelvic genitalia. However, we did note that the structures seemed to be pulled rather high; there was scarring in the region of the bladder base, and the picture to the examining finger was more that of an inflammatory process than anything else. By that, I mean tense, tender, tight uterosacral ligaments which were smooth. I didn't detect any definite localized masses.

I think the pelvic findings fit the picture of pelvic peritonitis. I say that, being unable to palpate anything higher up. We felt that the patient probably had a peritonitis.

Mr. Lee mentioned the possibility of a chronic gonorrheal salpingitis with tubo-ovarian abscess and rupture. Unfortunately, we do not have a very good history; particularly do we have a poor interval history between the time of this presumed spontaneous or induced abortion and the time when she apparently became acutely ill three or four days prior to her admission. I can only assume that she must have been well in the interval.

At any rate, if we assume that this patient was pregnant, I think that would be fairly strong evidence against a long standing gonorrheal type of pelvic disease.

Any time a patient misses periods, has subjective symptoms of pregnancy, and then bleeds, we must think about abortion. I think we also have to consider ruptured tubal ectopic pregnancy, particularly when the patient comes into the emergency room in shock. However, only that suggests a ruptured ectopic pregnancy in this case. She did not have pain characteristic of ectopic pregnancy. Certainly, with a patient in shock, on the basis of a ruptured tubal ectopic pregnancy, I would have expected the red blood cell count to have been a little lower and the anemia perhaps a little more marked, even though she apparently was in a severe state of dehydration. Nor did I feel the typical mass.

We do not expect to find pelvic peritonitis, particularly on a bacterial basis, in a ruptured ectopic pregnancy; usually we are able to detect such signs of blood in the pelvic sac as a unilateral soft, doughy mass. We could not determine how tender this patient was because she was not reacting even to rather marked stimuli.

As far as the question of postabortal infection is concerned, I think that we can't say too much definitely about that possibility because we don't have adequate history.

I think we have ruled out a chronic salpingitis, at least for the time being.

What about an acute gonorrheal infection, postpartum? An acute gonorrheal infection postpartum usually arises as a surface infection, a gonorrheal salpingitis, and we usually expect those things to arise around the seventh day postpartum.

The septic postabortal pelvic infection, usually on the basis of an anerobic streptococcus, can very well begin in the endometrium, spread to the myometrium, and by way of the lymphatics and blood vessels into the paracervical and parauterine tissues where a localized abscess will be formed on rare occasions. The possibility of rupture into the peritoneal cavity is there. However, these infections usually manifest themselves about the third or fourth day and certainly not later than the fifth day postpartum. The patient usually has quite a lot of pain and typically but not always has a large tender uterus. Spiking fever begins, and it is quite obvious that the patient is ill.

If diagnosis is made and the patient properly treated, the infection may subside. However, if the patient is not treated or if the infection does not respond to the treatment instituted, we would expect such a patient to have remained quite ill, while the infection spreads through the myometrium and into the paracervical and parauterine tissues.

A pelvic thrombophlebitis on the basis of postabortal infection typically occurs on about the 12th to 14th day; occasionally we see a patient who is running a moderate spiking fever and suddenly, on about the 13th or 14th day, the illness becomes much worse.

I don't think I can reconcile that diagnosis to this

patient, who, I am assuming, was relatively well until three or four days prior to the onset of this rather rapid overwhelming infection, although I am frank to say that, without a history, I am a little bit at a loss.

We felt this patient had a pelvic peritonitis. We did not feel that we could definitely state that it arose on any focus within the pelvis itself. Looking back at the history, I think we could logically say that we would have to look elsewhere for the origin of the infection.

Dr. William Valk (urology): There are three very definite factors in this case that cannot be overlooked. First is that this patient had a far advanced generalized peritonitis; second, although there is a very suggestive story of an abortion some three weeks before admission, there was no pelvic abscess or mass present to indicate a primary suppurative infection in this area. Third, there were definite signs of left renal inflammation.

Of all the organs of the body, the kidney is one of the most available for diagnosis. Any infection in the kidney of any appreciable degree causes severe pain in the flank and particularly a severe pain in the costovertebral angle. This is a typical finding and is present if there is an infection of any degree in the kidney.

We can visualize the kidney. We can put a catheter up that kidney, obtain a specimen of urine from it, and determine whether or not there is infection emptying into the ducts of that kidney. We can make a pyelogram and see if there is any distortion of the normal architecture of the kidney. If we are concerned about the possibility of a carbuncle of that kidney or a cortical abscess of that kidney, that usually can be visualized by the dye. If we feel that we cannot put a catheter into the kidney, then we can make an intravenous pyelogram.

This woman demonstrated no renal insufficiency. The NPN, at least on one reading, was 50 mgm. per cent, and the chances are that we could have obtained at least some visualization by means of an exploratory pyelogram.

When there is suppuration in the kidney area, the perinephric area of the peritoneal space, there usually is absence of the psoas shadow on the right side. Dr. Tice can read a smaller contracted shadow on the left side, so that the possibility of a low retroperitoneal abscess probably is ruled out. There hasn't been enough fluid passing into the psoas muscle to make it transparent roentgenologically.

However, an abscess in the retroperitoneal area above the kidney or in the upper medial portion may not cause obscuration of the psoas shadow. In that case, there always is a fixation of the diaphragm on that side.

The best indication of perinephric inflammation and infection is the lack of mobility of the kidney. A breathing film usually is made, and if that kidney is fixed, we know that there has been enough inflammation around that kidney to prevent motion.

Also, there usually is some curvature of the vertebra with the concavity toward the affected side, and it is possible that there may be some in this film.

This woman, then, did have left renal suppuration. She had had numerous operations for the probable vesicovaginal fistula which could very well interfere with proper drainage of the left ureter.

It is extremely rare for a suppurating hydronephrotic kidney to rupture into the peritoneum—that's an almost unheard-of complication. It is almost unheard-of for a severely infected kidney, a kidney with severe pyelonephritis, to cause much intraperitoneal disease. True, there sometimes is ileus; there sometimes is nausea and vomiting. But the well defined signs of peritonitis are not present. This patient did not have an extremely high white count but, as Mr. Lee indicated, she was in a period of exhaustion and was not responding to such an overwhelming infection.

The third possibility for suppuration is a perinephric suppuration—a disease in the heavy capsule around the kidney which may come from a metastatic source, from a previous septicemia or bacteremia, with lodgement of bacteria in this poorly vascularized fatty area, and the development of a huge abscess in this part of the retroperitoneal space. This abscess also could occur from rupture of a small infected cyst or small abscess of the cortex into the fatty space.

Dr. Delp: Dr. Calkins, do you have any comments about the gynecological picture we have developed here?

Dr. L. A. Calkins (gynecology and obstetrics): Yes, I want to congratulate Mr. Lee on his analysis of this case. There is very little to add. Dr. Critchfield's remarks further limit what I might say. To me, it seems unlikely that an abortion had anything to do with the patient's illness. If the details as given in the history are correct, if she had the abortion three weeks before, the only possible way that it could be operative, as I see it, is in the way that Mr. Lee described.

Dr. Valk has pointed out that these infections in the kidney can lie dormant for a long time and then break out in the acute form. I wonder if the presence of this pregnancy that eventually was aborted might have served as a trigger mechanism to exacerbate a dormant kidney infection. I would doubt that the abortion had anything to do with it, but I think the pressures of pregnancy might have had something to do with lighting up the urinary tract infection. I'm not sure whether or not it reactivates perinephric infection, but it certainly can with kidney infections.

PATHOLOGY REPORT

Dr. Ann Pollak (pathology and oncology): An incision into the abdomen revealed 1200 cc. of thin obviously purulent material. There were easily friable adhesions between adjoining loops of bowel, suggesting a relatively fresh peritonitis. Pressure on the left upper quadrant permitted a lot of thick purulent material to escape from the true peritoneal cavity. It appeared older than the exudate found in the pelvic peritoneal cavity.

The left kidney had been completely stripped free of its capsule and was floating in a sea of pus. This brought out the question of some communication between the perinephric abscess on the left and the peritoneal cavity. There was, in fact, such a communication. It was a sinus tract leading from the perinephric abscess on the left, beneath the sigmoid colon, and into the peritoneal cavity.

Most of the kidney had been dissected away from the surrounding tissue by the pus. The left ureter was dilated; the mucosa was thickened and reddened, and we ran into an obstruction on trying to enter the bladder. The bladder was shrunken and was surrounded by a great deal of fibrous tissue. As far as I could tell, the right ureter was even more obstructed than the left, but both of them were at least partly obstructed by the fibrous tissue surrounding the bladder.

The uterus showed no evidence of a previous pregnancy. We examined it carefully for evidence of instrumentation, and there was none. We could find no evidence of pregnancy, but that doesn't mean there had been none.

The pale liver was large and contained fat. The lungs showed some edema and some congestion.

Cultures from both the kidney and the peritoneal fluid contained aerogenes bacilli.

Microscopic examination of the tissues showed a long standing pyelonephritis of the left kidney, a perinephric abscess, and direct extension from the infected kidney of infection to the surrounding tissue.

The peritonitis was acute.

There was fresh hemorrhage in the central portion of the adrenal and necrosis. This is what we sometimes see in overwhelming infections.

The heart grossly showed a thrombotic non-bacterial endocarditis involving both the mitral valves and the tricuspid valves. Microscopically, an Aschoff-like body was apparent. Thus, this patient had two extra lesions. In addition to bilateral non-bacterial thrombotic endocarditis of the mitral and tricuspid valves, a pericarditis also was present. This would raise the question in everybody's mind as to whether or not this represented a terminal acute rheumatic fever. Nobody was willing to make this diagnosis on the evidence presented, but I believe that all who looked at these slides agreed that this is the type of reaction that occurs, and it's a question of how much one has to have before putting a name on it—that name being acute rheumatic fever.

There is another lesion which I can't explain. That is dilatation of the pancreatic ascini. It occurs in 40 per cent of a group of 200 patients without uremia who came to autopsy from various conditions. To me, this is not uremia; however, the lesion is present.

Dr. Delp: One will have to admit that this case has a lot of interest and value as far as instruction is concerned.

There are some factors which have to do with management of this patient that we should not take time to discuss. I would like to have anyone comment on Mr. Lee's question as to whether terramycin and penicillin should have been used in combination.

Dr. Robert Weber (medicine resident): I think the patient needed something else besides the penicillin and terramycin.

Dr. Delp: What about the combination of terramycin and penicillin? Do you think antagonism might have developed?

Dr. Weber: It's possible. If this patient received massive doses of penicillin, I doubt if antagonism occurred.

Dr. Delp: I don't think we can answer that question. Something would have had to be done to obviate the terrific peritonitis she had, besides giving antibiotics. Perhaps, had we been able to start that treatment three or four days before, it would have helped. I am very certain that the two shots of penicillin the patient received three or four days before admission didn't do any good.

It would seem that the logical combination of antibiotics should have been penicillin and streptomycin. I think it is highly doubtful whether they would have combatted the infection this patient had and the peculiar manner in which the infection occurred.

FINAL ANATOMICAL DIAGNOSIS

Primary:

Fibrosis and scarring with obstruction of both ureterovesicular junctions (history of cystotomy and bladder repair following lacerations during childbirth nine years ago).

Left hydroureter and hydronephrosis.

Bilateral chronic active pyelonephritis and ureteritis more marked on left.

Left perinephric abscess, with sinus tract from perinephric abscess to peritoneal cavity through the splenic flexure of mesentery.

Purulent peritonitis (1200 cc.).

Hyperplasia of the spleen.

Congestion and edema of the lungs.

Bilateral non-bacterial thrombotic endocarditis of mitral and tricuspid valves.

Focal myocarditis, slight.

Pericarditis, slight.

Focal dilatation of pancreatic ascini.

Recent wounds of ankles and forearms, bilateral (history of recent incisions for parenteral fluid injection).

Healed deformed scars at midline and right lower quadrant of abdomen.

Accessory:

Healed linear scars, lateral aspect of right thigh, and anterior aspects of both lower legs.

Arteriosclerosis of aorta, slight.

SUMMARY

Several confusing elements in the history, physical findings, and x-ray findings increased the difficulty in making a completely correct antemortem diagnosis. The spontaneous abortion occurring only three weeks prior to the onset of the illness obviously was misleading. Even though the record was clear as to several pelvic operations in an effort to correct a probable vesicovaginal fistula, the final implication of a hydronephrosis was not convincing.

That the patient had peritonitis seemed clear, but the origin from a perinephric abscess instead of a pelvic abscess was surprising. The classic distortion of the psoas muscle shadow in the flat KUB x-ray films was disappointingly absent.

In retrospect, the use of antibiotics might well have been different but of doubtful value in any combination. Infection remains a formidable danger, especially under such circumstances as these.

Tuberculosis Deaths Decrease

Deaths from tuberculosis decreased substantially in Kansas during the period from 1940 to 1950, according to figures released recently by the National Tuberculosis Association. This state, in fact, ranked seventh among all the states in percentage decrease, being surpassed only by California, Colorado, Florida, Nevada, Washington, and Wyoming.

In 1940 there were 25.2 deaths from tuberculosis for each 100,000 persons living in Kansas. In 1950 the rate was 10.0, a percentage decrease of 60.3. The highest percentage of decrease, 69.5, was reported in Nevada.

The 19th annual meeting of the American College of Chest Physicians, held in New York City in May, surpassed all previous records for attendance. Dr. Charles F. Taylor, Norton, was re-elected governor of the college for Kansas.

Highlights of 102nd A.M.A. Convention

New York City, June 1-5, 1953

One hundred eighty-seven delegates responded to roll call as this convention of the policy making body came to order. We were comfortably seated at long tables with folders furnished by W. B. Saunders Company to contain all stereotyped material. Eventually, with all resolutions and reports, this was more than two inches thick.

Important policy making resolutions included veterans' medical care, osteopathy, medical ethics, and intern training. The House elected Dr. Walter B. Martin of Norfolk, Virginia, president-elect. Dr. Alfred Blalock, chief of surgery at Johns Hopkins, was awarded the Distinguished Service Medal for outstanding scientific advancement. This was for his development of the so-called "blue baby" operation.

We took a firm stand on veterans' treatment of non-service connected disabilities. Briefly stated, the resolution asks that this be returned to private hospitals and doctors, with the exception of those suffering from tuberculosis and nervous and mental diseases, who cannot afford to pay for their own hospital care. All members should read the resolution passed and the recommendations when fully published in the organization section of the *Journal of the A.M.A.*

This first day was filled with addresses, announcements, and the presentation of 75 resolutions which were referred to various reference committees for hearings to be held on Tuesday. One of the longest reports was from a special committee on osteopathy with Dr. John Cline as chairman. More about this later.

A highlight of this day's session was a scholarly address by Mrs. Hobby, secretary of the reorganized Department of Health Education and Welfare. Her words were carefully chosen and showed that she had accurate information. Throughout, she adhered to President Eisenhower's philosophy of government. Briefly stated by him to us last December, the states and municipalities should govern as far as possible, and the federal government should augment those efforts only where necessary. She thinks we, American medicine, should find a way to supply modern medical services to all the people of this country. She hoped this could be done in an orderly, democratic manner. We thought it appropriate for her to call attention to the specific wording of the Preamble of our Constitution which reads, "Promote the general welfare." It does not read to provide for the general welfare.

Tuesday was devoted to committee hearings. My own committee had no assignments, so I attended two. The first, on the osteopathic question, was discussing what should be done with the Cline report. This was well written and showed that objectivity had

been used in its preparation. The question of osteopathy—"Is it a cult, or isn't it?"—arose out of the mists of differences and was debated hotly on the floor of the House of Delegates. When, after two hours of debate, the matter finally came to a vote, it was decided by a majority that it is still a "cult," and our ethics prohibit consorting or counseling with a cult. A continuing special committee study was urged with several specific objectives. These included ways for medical doctors to ethically teach in colleges of osteopathy. Also included was the request that the several states should handle the problem on that level.

The matter of international treaties interfering with domestic laws or rights was studied and objections were stated. The Board of Trustees was asked to implement these suggestions.

It should be remembered, however, that it is a real problem, and that this problem has been brought into focus by the legal rights of cultists to place patients in tax built and supported institutions. The problem has many other ramifications, but the legal rights vary so markedly from state to state that it seems impossible to apply a single over-all plan. We Kansans argued that osteopathy had not helped in raising our standards. In spite of this, we said we would do all possible within our ethics to elevate theirs; we could not yet condone legalized adulteration. We were relieved when this view prevailed.

There were 11 resolutions variously worded concerning the press interview of Dr. Paul Hawley, director of the American College of Surgeons, printed in U. S. News and World Report. He appeared in person before this committee and made a fine presentation of all of the facts. Among these were: first, that all of our leaders are giving lip service to the cleaning of our own house; second, this is one of the admitted evils which should be stamped out, and this can be done only by us; third, that freedom of speech and press cannot be impugned in our democracy without grave danger. His testimony was humbly given and did serve to refute many false impressions which had been extant. You may all read the resolution brought in by the committee and passed by the House when it appears in the *Journal of the A.M.A.*

This covers briefly the two most controversial subjects before the reference committees. Another highlight was the inaugural ceremony. The program included a beautiful symphony concert, the orchestra composed of 70 physicians. Next was the presentation of a half-hour radio show of "Dr. Christian," Jean Hersholt playing his usual part. The oath of office and Dr. McCormick's address followed. Concluding was a reception and ball.

Kansans may be proud that in the receiving line along with the officers of the A.M.A. were Dr. and Mrs. Leo J. Shaefer of Salina. Mrs. Shaefer has now been installed as president of the Woman's Auxiliary to the A.M.A. We can all be proud, not only because Mrs. Shaefer is a Kansan, but also because she graces the office perfectly. This is, indeed, a heavy responsibility and a high honor, because there are now more than 62,500 members of the Woman's Auxiliary to the American Medical Association. Mrs. I. Joseph Waxse of Oswego, president of the Woman's Auxiliary to the Kansas Medical Society, made an excellent report of the activities of our state auxiliary and presented Mrs. Shaefer with a gift.

Now, a paragraph concerning the social activities. The stag dinner and entertainment put on by New York state and five boroughs was, indeed, marvelous. Every phase of the menu was superb. Three numbers of entertainment were presented and found to be highly superior. The daily Blue Shield Smorgasbord, cocktails and food, was timely, generous and very popular. Last, but not least, the annual auxiliary dinner was also a delight. It was addressed by Mrs. Ivy Baker Priest, treasurer of the United States. She extolled President Eisenhower in his unpopular role of budget trimming without immediate tax reduction. All of this was in the interest of sound economy in meeting commitments previously made. She and Mrs. Hobby are real parts of the Eisenhower team.

Finally, too little has been said about the scientific meetings of the various sections: color television teaching surgery as well as showing symposia on timely subjects; the review of that spectacular separation of the Brodie Siamese twins; the enormity of the scientific and technical exhibits at the Grand Central Palace. It was, indeed, stimulating and truly interested more than 17,000 physicians who had registered. It attracted 40,000 people to this great city.

May this report be a reminder to all Kansas members that we belong to the largest, most democratic, and the greatest medical organization on earth today. Its size cannot detract from individual interest. One can easily register and find through the program or the daily bulletin that in which he has a particular interest. With his A.M.A. badge, he has access to EVERY room from the committee hearings and the House of Delegates to the remotest rooms of the smallest specialty group.

Respectfully submitted,
L. S. NELSON, M.D., *Delegate*

TEXTBOOKS FOR KOREA

Physicians who wish to send medical textbooks and medical journals to Korea for utilization of South Korean medical schools and hospitals are asked to make shipments, express collect, to Alameda Medical Depot, 2155 Webster Street, Alameda, California. Shipments should be marked "Kormeded."

ACTIVITIES OF MEMBERS

Dr. Herbert C. Miller and Dr. Franklin C. Behrle, from the department of pediatrics at the University of Kansas Medical Center, presented a paper, "Changing Patterns of Respiration in Newborn Infants," before the American Pediatric Society at its May meeting in Atlantic City.

Dr. J. S. Reifsneider, Wichita, attended the International Congress of Otorhinolaryngology in Amsterdam last month.

Dr. Paul H. Lorhan, professor of anesthesiology at the University of Kansas School of Medicine, will conduct a course in anesthesiology in Spain in August. He has also been asked to speak on "Geriatric Anesthesia" before the American Society of Anesthesiologists at a meeting to be held in Seattle in October.

Recent appointments of county health officers, announced by their respective county boards of commissioners, include the following: Dr. R. R. Clutz, Bendena, Doniphan County; Dr. R. L. McAllister, Marysville, Marshall County; Dr. N. D. Harris, Liberal, Seward County, and Dr. E. R. Beiderwell, Leoti, Wichita County.

Dr. V. M. Winkle, director of local health services for the Kansas State Board of Health, Topeka, was speaker at a meeting of the Dickinson County Medical Society held at Chapman in May.

Dr. Thomas F. Morrow, Wichita, recently became a diplomate of the American Board of Psychiatry and Neurology.

Dr. Dennis A. Hardman, Smith Center, and Dr. Wendell K. Nickell, Osborne, who expect to be recalled to service soon, were guests of honor at a recent party given by Dr. and Mrs. Buford Hartman, Kensington, for members of the Smith County Medical Society and their wives.

Dr. John L. Lattimore, Topeka, who has served four terms as president of Kansas Blue Cross, was reelected to that position at a meeting held in Topeka late in May. Dr. H. Preston Palmer, Scott City, was named to the board of directors for the first time, and three others were named to serve again on the board, Dr. A. L. Ashmore, Wichita; Dr. Thomas L. Hill, Arkansas City, and Dr. J. H. A. Peck, St. Francis.

Dr. Donald L. Rose, chairman of the department of physical medicine at the University of Kansas Medical Center, participated in a panel, "Rehabilitation in Arthritis," held as part of the annual session of the A.M.A. in New York City early in June.

Dr. Robert A. J. Shelley, Coldwater, completed 50 years in the practice of medicine on May 1. He has practiced in Coldwater for 29 years.

Dr. H. S. Dreher, Sr., Salina, announces that his son, Dr. Richard L. Dreher, has completed his second year of residency at the University of Kansas Medical Center and is now associated with the Mowery Clinic, Salina. A brother of the new physician, Dr. H. S. Dreher, Jr., also practices at the Mowery Clinic.

Dr. Daniel J. Hagan, who has been serving in the medical corps in Japan, has been released from the service and is now associated in practice with Dr. Newman C. Nash, Wichita.

Dr. William L. Valk, chairman of the section on urology at the University of Kansas Medical Center, was recently elected to membership in the American Association of Genitourinary Surgeons.

Dr. H. W. Lane, city-county health director for Kansas City and Wyandotte County, recently reported for active duty with the Army at Fort Sam Houston, Texas. During his absence Dr. L. B. Byington, assistant director, will serve as director.

Dr. Calvin Wartman, Ulysses, has begun a year's postgraduate work in surgery at the Pierce County Hospital, an affiliate of the University of Washington, at Seattle.

Dr. Franklin D. Murphy, chancellor of the University of Kansas, Lawrence, has been appointed to a one-year term on the Kansas Advisory Commission on Institutional Management by Governor Edward F. Arn. Dr. Karl A. Menninger, Topeka, has been named to a three-year term on the same commission. Dr. Clyde W. Miller, Wichita, was also appointed to the group.

Dr. James S. Johnson, Topeka, closed his office the first of the month to begin a residency in obstetrics and gynecology at the University of Kansas Medical Center.

Dr. David Robinson, professor of surgery at the University of Kansas Medical Center, was recently elected to membership in the American Surgical Association.

Dr. Evert C. Beaty, Parsons, was called to active duty with the Navy recently, reporting to Camp Miramar, California, in June.

A discussion of cardiac surgery for treatment of congenital heart lesions and acquired valvular deformities was given by Dr. E. Grey Dimond, chief of the cardiovascular section of the University of Kansas School of Medicine, before the Topeka Society of Internal Medicine in May.

Dr. Veryl Dean Schwartz, who has been serving in the Army medical corps in Korea, was recently released from the service and is now practicing in Wichita.

Dr. Karl A. Menninger, Topeka, participated in a symposium on "The Meaning and Use of Diagnosis in Psychotherapy" at the annual meeting of the American Psychiatric Association in Los Angeles in May. Also participating in the program were Dr. William Roth, Jr., and Dr. Merril E. Eaton, of the University of Kansas Medical Center, and Dr. Edward D. Greenwood and Dr. Lewis L. Robbins, of Topeka.

Dr. Robert R. Luttrell, director of the Shawnee Guidance Center, Topeka, for the past two years, resigned on July 1 to enter active duty with the Air Force. He reported to Gunter Air Force Base, Montgomery, Alabama, for a five-week orientation course.

The Wichita Pediatric Society announces the election of the following officers: president, Dr. Thomas C. Hurst; vice president, Dr. Roy C. Knappenberger; secretary, Dr. Mary J. Blood; treasurer, Dr. Walter L. Schafer.

Dr. Pratt Irby, who has been practicing urology in Fort Scott, has moved to Billings, Montana, where he is associated with the Billings Clinic.

Dr. Laurel G. Case, Enterprise, reported for duty last month at the Naval Air Station, Norman, Oklahoma.

Dr. Henry S. Blake, Topeka, was elected president of the National Medical Veterans' Society at a meeting held in New York City last month at the time of the A.M.A. meeting. Membership in the organization now numbers 20,000.

It has been reported that Dr. Glen Floyd, Winfield, who was recently recalled to the service, is now stationed in Korea.

Dr. Clarence D. Kosar, Concordia, announces that Dr. Lindell C. Owensby is now associated with him in practice. Dr. Owensby recently completed a two-year residency in ophthalmology at General Hospital, Kansas City, Missouri.

Dr. Dennis A. Hardman, Smith Center, was recently recalled to active duty with the Navy and reported for duty at Bainbridge, Maryland.

Dr. Norman E. Hull, who has just completed internship at Menorah Hospital, Kansas City, Missouri, is now practicing in Hays in association with Dr. William M. Brewer, Dr. Lloyd W. Reynolds, and Dr. John C. Artman.

Dr. Charles C. Dennie, Kansas City, was guest speaker at a recent meeting of the Montgomery County Medical Society. His subject was "Physiology of Antibiotics."

Dr. Robert D. Hughes, who has been practicing in Frankfort for several years, has moved to Marysville and is now practicing there.

Dr. Earl R. Beiderwell, Leoti, announces that Dr. John Martin is now associated with him in practice, specializing in obstetrics. Dr. Martin recently completed a three-year tour of duty in the Army, and for two years was in Iran as medical advisor at the American Embassy.

Dr. Frederick Speer, Kansas City, was speaker at a recent meeting of the Lyon County Medical Society at Emporia. His subject was "The Common Cold."

Dr. John M. Porter, Concordia, addressed the North Central Kansas Welfare Association, com-

prised of 19 counties in that section of the state, at a meeting held at Ottawa County State Lake on June 18. He spoke on social welfare, health, and education, and outlined the duties and objectives of the newly created cabinet post in Washington.

Dr. Warren F. Bernstorf, Winfield, immediate past president of the Kansas Medical Society, was principal advisor at the Health Education Workshop held at Lawrence, June 15-19. He stayed throughout the meeting and represented the Kansas Medical Society. Dr. Edward D. Greenwood, Topeka, served as chairman for the event.

Dr. John Waller, Halstead, announces that Dr. Marion Throckmorton, who was recently released from service with the Navy, is now associated with him in the practice of urology at the Hertzler Clinic.

Dr. Charles F. Haughey, Tribune, began a year's postgraduate study in surgery in Chicago on July 1. Dr. Richard N. Todd, a graduate of the University of Kansas School of Medicine who recently completed a tour of duty with the Navy, is taking over Dr. Haughey's practice.

Dr. O. C. Lowe, Paola, announces that Dr. Jack Rowlett and Dr. Rex Stanley are now associated with him in practice.

Dr. Richard J. Ohman, Dodge City, addressed the Kiwanis Club there recently on two subjects reported in the *Reader's Digest,* excessive use of antibiotics and alcoholism.

Dr. Charles E. Vestle, Humboldt, was speaker at a recent dinner meeting of the Allen County Medical Assistants' Society. Guests at the meeting were employees of the Randles Clinic and the Fort Scott Clinic.

Dr. James A. Wheeler, Newton, attended the A.M.A. meeting in Atlantic City last month and presented, by request, his exhibit on the relationship of the types of sleeping sickness that attack man and animals. He was also asked to present the exhibit at a medical meeting in Toronto, Canada, this month.

Nearly 28 per cent of the entire population of this country, more than 44,000,000 people, are now enrolled as members of Blue Cross, according to a recent report of Richard M. Jones, director of the Blue Cross Commission of the American Hospital Association. A record-breaking $570,000,000 in benefits was paid to hospitals by Blue Cross in 1952, representing 88.5 per cent of income. National average operating expense was reduced to 7.64 per cent.

DEATH NOTICES

Louie Frank Barney, M.D.

Dr. L. F. Barney, 76, a past president of the Kansas Medical Society and of the Wyandotte County Medical Society, died at his home in Kansas City on June 1. He had retired from practice after suffering a heart attack in December, 1951.

He began practice in Kansas City after his graduation from the Kansas City Medical College in 1903 and a year's internship at St. Margaret's Hospital. During World War I he served in the Army medical corps. In 1921 he joined the faculty of the University of Kansas School of Medicine as an assistant in surgery, and he later served as assistant professor and associate professor.

In addition to his service to medical societies, he was an active member of other professional organizations, a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons, and a member of the Western Surgical Association.

Ellis Austin Evans, M.D.

Dr. E. A. Evans, 76, an honorary member of the Tri-County Medical Society, died at his home in Conway Springs on May 30. He had been in active practice until suffering a stroke five weeks before his death. A graduate of Beaumont Hospital Medical College, St. Louis, in 1901, he began practice in Conway Springs that year, and had served the community continuously since that time. He had been a physician for the Missouri Pacific Railroad for almost 40 years.

William Ebenezer Currie, M.D.

Dr. W. E. Currie, 81, who had practiced in Sterling since 1900, died there on June 5. He had been in poor health for more than a year. He was a graduate of Kansas Medical College, Topeka. For 25 years he served on the board of trustees and executive committee of Sterling College. Dr. Currie was an honorary member of the Rice County Medical Society.

Management of Acute Renal Shutdown*

W. Jack Stelmach, Senior Student

University of Kansas School of Medicine

Definition: The term "renal shutdown" is used to denote the inability of the kidney to perform adequately in the formation of urine, excretion of products of catabolism, maintenance of water and acid base balance, and the regulation of essential materials in the relationship to osmotic equilibria.

In this presentation, the discussion will be limited to those cases which, prior to the development of acute renal shutdown, had essentially normal kidney function. Acute Bright's disease, acute nephritis, acute tubular nephritis, prerenal azotemia, lower nephron nephrosis, traumatic kidney, crush syndrome, and shock kidney are some of the common names given to the syndrome of acute renal insufficiency.[1]

Numerous factors have been implicated in the production of this state, including sensitization of kidney parenchyma to bacteria, drugs and other agents, shock state, burns, crush and blast injuries, hemorrhage, incompatible blood transfusions, acidosis and alkalosis, heat stroke, surgical intervention (reflex anuria), various hemolytic diseases, poisoning from various chemicals such as arsenic, mercury, carbon tetrachloride, and many other agents.[2, 3, 4]

In reviewing the pathogenesis and pathological features of this syndrome, one finds diversity of opinion in interpretation and description of the lesions involved. The kidney tubules have almost always been implicated, although varying somewhat as to the portion of the tubule involved and the degree of involvement. Cloudy swelling, degeneration, and necrosis of tubular cells, with frequent association of intratubular debris or casts, is the common descriptive microscopic lesion. Glomeruli showing slight swelling of the glomerular capsule are not infrequently described. The pathological physiology has been variously ascribed to renal vasospasm from toxic, hormonal, or neurogenic mechanisms, reduction of renal blood flow by shunting mechanisms and by nephrotoxins. Macgraith[5] et al. have suggested the term "renal anoxia syndrome" because of their strong belief that renal anoxia is the common factor in all these cases.

Inasmuch as the lesions are commonly tubular necrosis or degeneration and are not altered by any direct means and, moreover, are dependent upon the regenerative capacity of each individual, we are faced with the problem of promoting optimum conditions in order to maintain a physiological state necessary for regeneration, without the assistance of adequate renal function. Tubular regeneration usually starts after 10 days; therefore, every possible means of maintaining life should be employed during the critical period of from 10 to 14 days after anuria by oliguria has started.

MANAGEMENT

Dietary measures have long been considered one of the most important factors in promoting recovery. Considerable change in these views has occurred in the past 50 years. An entirely milk diet in considerable quantities was considered the diet of choice until 40 years ago, at which time Strauss and Widal demonstrated that edema and anasarca became evident or increased because of the high salt content of milk. They further showed that the nonprotein nitrogen substance in the serum of uremic patients became greatly increased because of the high protein value of milk.

In 1935 Volhard[6] recommended a starvation diet consisting only of 800 cc. of fruit juice. He theorized that the kidneys should rest to speed their recovery, and that all substances normally excreted by the kidney, including water, should be minimal. In the past few years the starvation diet has been criticized on the basis that a low caloric intake promotes or increases the breakdown of body protein, thereby further increasing the azotemia already present. Another criticism raised was that fruit juices contain large quantities of potassium, and greater quantities of potassium were released in the serum when endogenous protein breakdown occurred.

It was for these reasons that many clinicians suggested a diet high in carbohydrates and fat, and low in protein and salt. Borst,[7] in 1948, introduced such a diet consisting of 200 grams of butter and 200 grams of sugar. The butter is melted and then mixed with the sugar and about 12 grams of flour and coffee flavor. It is then chilled and served like candy in the form of separate sticks or balls containing about 50 grams of the mixture.

All sorts of modifications[8] have been made since the original; however, many patients still seem to have difficulty tolerating 400 grams of this mixture daily. It has been suggested that persuasion and a complete explanation of the necessity for its use

* This is one of 11 senior theses selected for publication by the Editorial Board from a group of 15 judged the best by the faculty of the University of Kansas School of Medicine.

would help the patient tolerate this diet. Borst has demonstrated that the diet will enable the patient to produce only 4 grams of urea a day, in comparison to 20 grams per day on a starvation diet. He further calculates that a patient without kidney function should live five times as long on this diet as a patient on a starvation diet.

Snapper[9] and Stock[10] were unable to show any significant difference between survival rates of patients on starvation diets or the more liberal low salt, low protein diets. At present, the use of the Borst diet or any similar diet seems to be indicated, not so much because of its propensity for prevention of azotemia where the serum levels have been shown to have no direct relationship to recovery, but because of its prevention of high serum levels which have been proved to be toxic, and the fact that patients seem to feel somewhat better when serum non-protein nitrogen substances are low.

For the reasons just mentioned, infection should be avoided. Prophylactic use of antibiotics should be of some benefit. Sulfonamides should be avoided because of the already existing renal parenchymal damage.

CONTROL OF WATER AND ELECTROLYTE BALANCE

If oliguria or anuria exists, the fluid intake should not exceed that lost by insensible perspiration until there is evidence that the kidney will respond to a greater intake by excreting a greater volume of urine. In the average 70 Kg. man, under conditions of room temperature, no fever, no diarrhea or vomiting, 750 cc. of water daily has been demonstrated by Gamble[11] to be sufficient to prevent body water loss. Fluids lost by excessive sweating, vomiting or diarrhea, and excretion of urine should be carefully calculated and replaced. An intake and output chart must be rigidly kept, including the exact measurements of any fluids given or lost. In the past, when fluid and electrolyte control was not adequately appreciated, a great many patients with anuria or oliguria were overtreated with various fluids, particularly salt solution, in the hope that diuresis would occur; however, this resulted in prolonging the morbidity and, in many cases, produced hypertension, cardiac failure, convulsion, and pulmonary edema which was fatal. In those patients who have been subjected to an excess of various intravenous infusions or transfusions, venesection should be done and 500 to 750 cc. of blood removed to avoid the complications mentioned above.

In the regulation of electrolytes, a knowledge of the concentrations of these substances present in the various body fluids is essential in order to replace correctly those electrolytes lost by the various routes. If there is access to a flame photometer, which can accurately and rapidly measure the electrolytic constituents of the lost body fluids and serum levels (repeated or daily levels), the problem of replacement is easier. This also gives a better idea as to how the patient is maintaining his electrolyte balance. It is known that occasionally the laboratory picture may be misleading; however, in most cases it is definitely of great benefit. Careful clinical observation cannot be overemphasized. Excessive sweating, vomiting, and diarrhea can cause large quantities of sodium chloride to be lost. Solutions containing equivalent amounts of these substances can be easily made up and then replaced by oral or intravenous administration.

Hyperpotassemia[12, 13] frequently occurs and has been reported to be one of the leading causes of death. This is brought about by massive cellular destruction after injury and tissue breakdown that occurs during starvation, leading to the release of great quantities of potassium which cannot be excreted. This can be detected early by such EKG changes as high peaked T waves, QRS slurring and broadening, disappearance of P waves, bradycardia, and finally various arrhythmias. Hyperpotassemia can be corrected by high caloric and carbohydrate diets which tend to promote the intake of potassium by the cells, administration of various exchange resins, which fixes the potassium in the bowel, or by various dialyzing procedures which will be mentioned later.

Hypocalcemia, which frequently occurs after rapid correction of acidosis, may produce nocturnal cramps or tetany and can be easily corrected by the administration of calcium gluconate, either by oral or intravenous administration. Hyperphosphatemia, which is commonly associated with hypocalcemia, has been treated by aluminum hydroxide gel given by mouth.

Mild acidosis can be prevented by the maintenance of a high caloric intake. Gamble[11] demonstrated that 100 grams of glucose per day was sufficient to prevent ketosis. If acidosis becomes severe, with the CO_2 combining power falling below 25 volume per cent, sodium bicarbonate should be given. One should not exceed 10 to 12 grams per day because of the quantity of base present.

Results obtained by the management just discussed did not always prove satisfactory. For this reason, various methods for reducing the levels of retention products from the blood of anuric patients were introduced. These methods consist of continuous dialysis of blood, either by way of an artificial kidney or by continuous lavage of the peritoneal cavity or small intestine. Other methods consist of replacement transfusion and cross or exchange transfusions. These procedures are applied in the hope that by cleansing the blood of the anuric patient, life

can be maintained until the kidney tubules have regenerated and diuresis has been restored.

ARTIFICIAL KIDNEY[14, 15, 16]

The principle of the artificial kidney consists of the passage of the patient's blood, which has been rendered uncoagulable by heparin, through a cellophane or cellulose-acetate tube which is submerged in a bath water containing various electrolytes. The concentrations of these electrolytes are so calculated as to be isotonic, or nearly so, with that of normal blood. Any differences of concentration will establish a gradient which causes diffusion of electrolytes either into or out of the semi-permeable tubing at the same time non-protein nitrogen substances are continuously diffusing from the blood into the bath water until equilibrium is established, thus favoring electrolyte balance and also ridding the blood of considerable quantities of urea, creatinine, uric acid, indican, and xanthoprotein substances. Kolff, who has had considerable experience and has popularized this method, used a dialyzing fluid containing 0.6 per cent NaCl, 0.4 per cent KCl, 0.2 per cent of $NaHCO_3$ and 1.5 to 2 per cent of glucose. His bath water does not contain calcium because this would be precipitated by the $NaHCO_3$. Since considerable amounts of calcium are lost, calcium gluconate must be repeatedly injected intravenously during the procedure. Glucose is added in order to make up for the osmotic pressure of the plasma protein. In patients with edema, the glucose withdraws fluid from the plasma and at the same time serves as a caloric intake.

Results have not been overwhelmingly successful. Up to 1949, only 11 cases were reported as successfully treated by this method. The question is always raised as to whether these patients would have recovered spontaneously. The evidence appears to indicate that the artificial kidney did benefit or at least temporarily improve these patients; however, no definite conclusion can be made until after many more trials. It is true that in many cases this method was used as a last resort, thereby not giving it a fair trial under conditions which would be more favorable.

Peritoneal Dialysis:[17, 18] Frank, Seligman, and Fine revived peritoneal lavage as a treatment for uremia in 1946. The principle is similar to that of the artificial kidney; however, the peritoneal membrane acts as the dialyzing membrane. Solutions similar in composition to the bath water of the artificial kidney can be used. Until 1948 there were 34 reported patients treated by this method, of whom 9 recovered. By 1949, 21 cases were reported to have been successfully treated by this method. Even though this procedure is simpler and has the advantage of not handling the patient's blood, it has been generally abandoned after repeated trials in many medical centers. This was because mechanical difficulties frequently prevented drainage of the peritoneum, thereby causing difficulty in controlling water and electrolyte balance, and frequent development of fatal peritonitis, abdominal colic, and meteorism.

Intestinal Irrigation:[19, 20] This method differs from the previous two procedures in that the dialyzing membrane is the small intestinal mucosa, which has specific absorbing qualities. It has been shown that lavage of the colon or stomach has no value in removing urinary retention products from anuric patients. Intestinal lavage presents more difficulty in the preparation of a rinsing fluid which will not upset the water and electrolyte balance. It is extremely difficult or impossible to predict how the mucosa of a certain patient is likely to react. If intestinal irrigation is done, constant supervision of the blood plasma electrolytes is necessary. To prevent fluid absorption, solutions are made moderately hypertonic. This can be done by adding sucrose or glucose ureide, magnesium sulfate, sodium sulfate, or a combination of all the substances. Equilibrium tends to be established with a solution containing 24 meq. of sodium, 24 meq. of bicarbonate, 5 to 6 meq. of potassium, 5 meq. of calcium, and 10 meq. of chloride. Irrigation of the entire intestinal tract, an isolated portion fixed by surgical means, or the use of one or two Miller-Abbott tubes, are some of the techniques used for this procedure. Reported successful cases to date have been scanty. Failures are attributed to the mechanical difficulties encountered, intestinal paralysis, and the great problem of keeping the Miller-Abbott tubes down for the proper length of time because of the common symptoms of nausea and vomiting.

Replacement Transfusions: Bessis[21] and Bernard introduced this method in treating patients suffering from leukemia. It has also been used extensively in newborns suffering from erythroblastosis fetalis. Bessis has introduced this method to improve the condition of uremic patients. This procedure consists of infusing a large volume of fresh blood in one arm while at the same time an equal volume or more blood is removed from the opposite arm. It is easy to calculate how much urea or other retention products can be removed. For example, if the blood urea is 300 mgm. per cent, the removal of one litre of blood would remove 3 grams of urea.

The advantages of this method in comparison to the other methods are that all toxic substances are removed whether dialysable or not, it will improve the protein, water, electrolyte content of the plasma, and it does not cause hemolysis. It has been further emphasized that the replacement of fresh blood is not only a substitute measure but actually plays a resuscitation role in promoting better organ func-

tion. This is the opinion of various French authors who believe that the blood of anuric patients is full of toxic retention products which inhibit the functions of different organs. The advocates of the other methods criticize the fact that huge quantities of blood must be used to remove the same amount as by the dialyzing methods. Other criticisms are blood reactions and the problem of obtaining large quantities of blood, particularly of the rarer types.

Exchange or Cross Transfusions: This procedure is done by exchanging equal amounts of blood between anuric and healthy patients at the same time, thus allowing the healthy individual to perform the necessary kidney function until improvement of the anuric patient occurs. This method has been practiced successfully in dogs for many years. It has been shown that the urinary retention products of anuric dogs could be reduced to half within a few hours. This method was abandoned after Salisbury,[22] who carefully studied this procedure, tried it on human beings. Unfortunately, one healthy donor who was transfused to a nephritic patient developed an incurable blood dyscrasia and died. No clinical trials have been done since.

SUMMARY

The conservative management of acute renal shutdown has been briefly discussed. Use of the Borst diet or any similar diet which is low in protein and salt and high in calories is recommended to prevent body protein breakdown, hyperpotassemia, and acidosis. Prevention of infection by prophylactic use of antibiotics is recommended for the same reasons. The restriction of water intake to 750 cc., plus adequate replacement of any fluids over and above that lost from insensible perspiration, makes for good fluid control. Electrolyte regulation is made easier by daily laboratory tests on serum levels of electrolytes and CO_2 combining power. Fluids and electrolytes lost by various routes, such as from vomiting or diarrhea, should be counterbalanced daily. If patients have been overtreated with various fluids, a blood venesection with removal of 500 to 750 cc. of blood is recommended to prevent complications that occur whenever the cardiovascular system is overloaded.

The heroic measures of treating acute renal shutdown, such as artificial kidney, peritoneal lavage, intestinal irrigation, replacement and cross transfusion, have been briefly discussed. The results have not been overwhelmingly successful. No final conclusions can be made until more clinical trials have been made, particularly in patients who are not completely hopeless in prognosis.

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MEDICAL PROGRAM ON TV

A new 26-week series of five-minute spot television programs, entitled "M.D." and produced by F. William Hart in co-operation with the A.M.A., began on Monday, June 1, over all 45 stations of the NBC-TV network. The series is presented as a public service by the National Broadcasting Company and E. R. Squibb and Sons.

The program, featuring helpful health advice brought by "your family physician and his county medical society," is presented as a five-minute portion of the Dave Garroway "Today" show every Monday morning from 7:00 to 9:00.

The Squibb advertising on the program will be limited to an institutional message. Whenever the programs are televised locally, the county medical society will be invited to approve local sponsors.

Patronize JOURNAL advertisers. The patronage of Kansas physicians will assure advertisers that their support of this publication is appreciated.

Three out of four traffic accidents happen in clear weather on dry roads.

THE KANSAS PRESS LOOKS AT MEDICINE

Public Needs to Learn More About Medicine

The other day in Emporia, a group of Kansas doctors sat down with a group of Kansas newspapermen and hashed over a mutual problem: How to get more and better medical news in print.

The meeting was unusual because doctors and newspapermen, despite personal friendships, have developed a mutual distrust and they have a basic conflict of interests which, until now they have considered insurmountable.

The conflict is understandable. A newspaper wants all the news it can get within, of course, the bounds of decency. It wants the who, what, when, where, why and how, of every story.

The doctor is bound by his code of ethics to protect the privacy of his patient and to shy away from any personal mention which might be mistaken for advertising.

As a result, the doctor won't answer a reporter's questions and that makes the reporter mad; or if the reporter does find some way to finagle the information and it gets into print, the doctor considers it treachery and he gets mad.

This state of affairs has done nothing for the profession of journalism. All it has done for the profession of medicine is provide a bigger backlog of hypertension and ulcer cases. So any effort to recognize this conflict and find grounds for mutual agreement and compromise between the two professions, is laudable.

The doctors in the Emporia meeting were heart specialists and their immediate concern is the dissemination of information about heart disease. Partly, they want this in order to meet the financial needs of the Kansas Heart association which needs money for its research, training and information programs.

But, giving the doctors their full due, the chief interest is in saving lives. Presumably the publicity given a fatal automobile accident impresses upon drivers, if only momentarily, the importance of driving carefully. Presumably, if attention were focused more upon heart attacks, readers would be prompted to give more thought to their hearts, get a physical checkup more often.

Doctors frankly want to tell the public more—more about diseases, their symptoms, their cures. As one doctor at the Emporia meeting put it: The old fashioned doctor who took the "papa knows better attitude," and never said anything, is on the way out.

But the doctors still have their fears about newspapermen. They're afraid facts will be distorted, readers will get wrong impressions, or that propriety will be violated by giving the doctor too much advertising or invading the patient's privacy.

If the interest is there, however, these fears are groundless. If the grumpy old doctor, who didn't believe the public deserves any medical information, is on the way out, so is the hell-for-leather reporter who wanted a story no matter whom it hurt.

It is true most Kansas newspapers are too small to afford a specialized medical reporter. But the general reporter, if he has the advice and guidance of members of his medical society, can write the most complicated story correctly and intelligently.

The matter of patient privacy is probably not as serious as the doctors think. Usually, if the trouble is taken to ask the patient, he will consent to a story about him and his disease. People like to get their names in the paper. This usually is true whether they have exhibited the biggest turnip at the county fair, or grown the biggest tumor in Southwest Kansas.

People are news. And people who have had the experience of sickness with all its hardships and pathos, and the experience of being healed at the hands of skilled and dedicated doctors, with all the attendant miracles of medicine, are as important and interesting news as any in the community.

Nearly every disease has a national headquarters these days. Reams of publicity are ground out and sent to newspapers. Most of it goes in the waste baskets of editors whose desks are swamped every morning with all kinds of propaganda handouts. But there is a local story about every disease too and no editor worth his salt will ignore it.

A wordy release about cardiacs from the New York office of the American Heart association is never as interesting as the story of the town banker who is back at his desk after a heart attack because he did what his doctor said and his doctor performed some of the miracles of modern medicine. His neighbors would enjoy reading about it, and would profit from his story.

Some doctors at the Emporia meeting said they were going home and invite their local editors to the next medical society meeting to talk this thing over. This is the most encouraging sign since the Panmunjom truce talks began.—*John McCormally, Hutchinson News-Herald, May 19, 1953.*

A New Doctor

There was quite a celebration the other night in Weir, a small town in northern Cherokee County. Four hundred citizens were present, the high school band gave out with music, and numerous speeches of welcome were on the program.

1. *Dizziness . . . movement is within the head.*
2. *Objective vertigo . . . the environment is in motion.*
3. *Subjective vertigo . . . the patient himself moves in space.*

1

2

3

TYPES OF VERTIGO:

Their symptomatic relief with Dramamine®

The disagreeable sensations of dizziness which physicians are frequently required to explain to patients have been described by Simonton[1] as varying from a slight sensation of confusion to severe vertigo.

While dizziness or giddiness is classified as a sensation of unsteadiness with a feeling of movement within the head, in vertigo the environment seems to spin (objective vertigo) or the body to revolve in space (subjective vertigo). Labyrinthine disturbances are likely to cause a sensation of rotation. Among the more common causes of dizziness or vertigo, this author lists: Damage to the vestibular nuclei or tracts in the central nervous system, involvement of the vestibular end organs by disease of the ear, Ménière's disease, toxicity of drugs, ocular vertigo from sudden diplopia, visual field defects, looking down from heights and motion sickness due to hyperactive labyrinthine reaction from riding in vehicles.

Dramamine (brand of dimenhydrinate) has proved effective in treating many of these disturbances. The indications for which Dramamine is now Council accepted include: Motion sickness, the nausea and vomiting associated with pregnancy, certain drugs, electroshock therapy and narcotization; vestibular dysfunction associated with streptomycin therapy; the vertigo of Ménière's syndrome, hypertensive disease and that following fenestration procedures, labyrinthitis and radiation sickness.

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SEARLE *Research in the Service of Medicine*

It was not a new industry, a highway improvement, a new school or the town's anniversary which Weir noted with an outburst of music and oratory. Rather a high pitch of enthusiasm was reached over the arrival in town of a new doctor.

Small towns have been losing doctors to larger cities in recent years. Loss of medical service is a real blow to any community and as with anything else, it is not truly appreciated until there is none to be had.

The trend in Kansas fortunately is being reversed. Primarily because of the state's rural health program, doctors are being induced to locate in small towns where there is ample opportunity for service to humanity and to the profession.

But many towns still are without doctors and the shortage may continue some years. It is an occasion for civic celebration when a town lands a doctor nowadays, and Weir simply was following a natural inclination when it turned out with the band to give the glad hand to a professional man who had chosen to practice in the community.—*Parsons Sun, May 18, 1953.*

ANNOUNCEMENTS

An institute on teaching and improving esophageal speech will be held in Cleveland, August 10 through 16, at the Cleveland Hearing and Speech Center. This institute, the second on voice pathology, is sponsored by the American Cancer Society, the National Cancer Institute, the Office of Vocational Rehabilitation, the Cleveland Otolaryngological Society, the Cleveland Academy of Medicine, and Western Reserve University School of Medicine.

Non-speaking laryngectomized persons are invited to attend without charge. They may be sent by surgeons, cancer societies, societies for crippled persons, and rehabilitation services. Surgeons, speech pathologists, and lay persons are also invited to attend the sessions, but registrations will be limited.

Applications are to be addressed to Warren H. Gardner, Ph.D., 11206 Euclid Avenue, Cleveland 6, Ohio.

The 18th Annual Congress of the United States and Canadian Sections of the International College of Surgeons will be held at the Waldorf-Astoria, New York, September 13 through 16. A session open to the public will be held on September 13, with sessions on colo-proctology, neurosurgery, obstetrics and gynecology, occupational surgery, ophthalmology, orthopedic surgery, otolaryngology, plastic surgery, and urologic surgery following.

Approved residencies under the supervision of Washington and St. Louis University Schools of Medicine, St. Louis, Missouri, are available at the Veterans Administration Hospital, Jefferson Barracks, Missouri. Training is fully accredited by the American boards of each specialty, and salaries, depending on previously approved training toward board requirements, range from $2,640 to $3,300 per annum.

Communications regarding the residencies may be addressed to the Manager, Veterans Administration Hospital, Jefferson Barracks, Missouri.

New Virus Research Laboratory

Highly hazardous and infectious diseases are now being studied at close range in a new virus research laboratory built by Parke, Davis and Company in Detroit. In the specially designed building, one of the few of its kind in the world, scientists are conducting experiments involving polio, "Q" fever, the common cold, mumps, measles, Japanese "B" encephalitis, equine encephalomyelitis, and other infectious diseases.

The unit is made up of five rooms which can be sealed off and decontaminated easily. A special finish on the walls allows steam or disinfectant sterilization. Isolation units are provided for several thousand animals to eliminate cross-infection. There are special ultra-violet hoods under which scientists work on eggs and cultures, and air is exhausted with high-pressure steam.

Major projects include the study of chemotherapeutic agents for infectious diseases, new vaccines for the immunization of human beings, and fundamental research on the nature of various viruses.

Resident Wins Traineeship

Dr. Francis Lohrenz, a resident in the Department of Medicine at the University of Kansas Medical Center, has been granted a $3,600 traineeship in metabolic diseases from the National Institutes of Health, Bethesda, Maryland, effective July 1.

Official records show that alcoholic beverage consumption in the United States has increased 124.6 per cent from 1934 through 1952, declares the American Business Men's Research Foundation, making public an appraisal of records since the repeal of the 18th Amendment. During this period the consumption of alcohol has gone from 0.53 gallons per capita in 1934 to 1.39 gallons per capita in 1952.

Although there has been some fluctuation during the past 18 years, beer consumption, which was only 7.90 gallons in 1934, has made an increase of 115 per cent, to 16.95 gallons in 1952.

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BOOK REVIEWS

Psychology of Physical Illness: Psychiatry Applied to Medicine, Surgery, and the Specialties. Edited by Leopold Bellak. Published by Grune and Stratton, Inc, New York City. 243 pages. Price $5.50.

The book is meant to apply psychiatric insight to medicine, surgery, and the other specialties. The psychiatric aspects of general practice, internal medicine, malignancy, general surgery, plastic surgery, gynecology and obstetrics, genital urinary system, orthopedics, ear, nose and throat, neurology, pediatrics, dermatology, and dentistry are discussed. There is a chapter on the personality of the physician as a factor.

The book is meant to be read as a whole and then used as a reference work for the various specialties. Probably its greatest weakness is its use of psychoanalytic terminology and concepts which make it difficult for the non-psychiatrist to understand and accept. Another possible weakness of the book would be the tendency of the specialist to read only the chapter involving his own practice.

If the non-psychiatrist is able to accept the psychoanalytic interpretations, the book then becomes a lucid, well-written work which gives the specialist and general practitioner a great deal of insight into the psychological aspects of the practice of medicine.—*P. C. L.*

Scientific Principles in Nursing. Second edition. By Esther McClain. Published by C. V. Mosby Company, St. Louis. 449 pages. Price $3.50.

Miss McClain states that the "purpose of this book is to show how some of the basic scientific principles may be used in nursing practice." Beginning with an orientation to nursing in the hospital and the community, the text concentrates on fulfilling its purpose by introducing scientific principles into discussion of common nursing measures. At times the device of labelling certain principles "sociology" or "pharmacology" or "physics" seems slightly contrived, and often the discussion is too superficial to be of value. The chapter on diagnostic tests, however, is particularly well arranged and appears to be excellent. The check list at the end of each chapter has value for the student and instructor in encouraging self-evaluation.

The book is well supplied with diagrams and line drawings which will not readily be outdated. The printing is easily read, and concepts are briefly and clearly stated. The placement of references at the back of the book rather than following each chapter seems an awkward device, but may avoid distraction.

This book would appear to be of value as a reference work for students and instructors.—*H.*

Psychiatric Aide Education. By Bernard H. Hall. Published by Grune and Stratton, Inc., New York, New York. 168 pages. Price $5.75.

This cloth bound volume is a report of an experiment in the education of psychiatric aides conducted by the Menninger Foundation in co-operation with the Topeka State Hospital from October 3, 1949, to June 30, 1952, under a grant from the Rockefeller Foundation.

The report consists of an introduction by Dr. Karl Menninger, the author's preface, an introduction to the experiment, then 11 chapters dissecting the total project. There are 21 references and a lengthy bibliography and nine appendices—one of which included the course outline.

In the conclusion, the authors indicate that the experience of conducting a psychiatric aide school has provided them "with more definitive answers to the question of *how* to train psychiatric aides" but "could not yield definitive answers to the questions—*how much* of *what material* should be taught and to *whom*. The authors feel further effort is needed on the part of psychiatrists and nurses, both locally and nationally, to evolve a skilled and stable group of psychiatric aides to assure the betterment of the care of the psychiatric patient.

The Epidemiology of Health. Edited by Iago Galdston. Published by Health Education Council, New York Academy of Medicine, New York City. 197 pages. Price $4.00.

This book is based on the Eleventh Annual Eastern States Health Education Conference. With Dr. Iago Galdston as the editor, different men have written various chapters.

The evolution of the epidemiologic theory is traced, showing that initially the approach was in the study of infectious agents. This was followed by the ecologic concept of mass disease in which a content of epidemiology beyond the communicable diseases was recognized. With mass disease interpreted in terms of ecology, the principles of prevention and control became evident. Epidemiology, in company with science generally, is always in search of advanced conceptual ideas. So there has developed the conception of an epidemiology of health.

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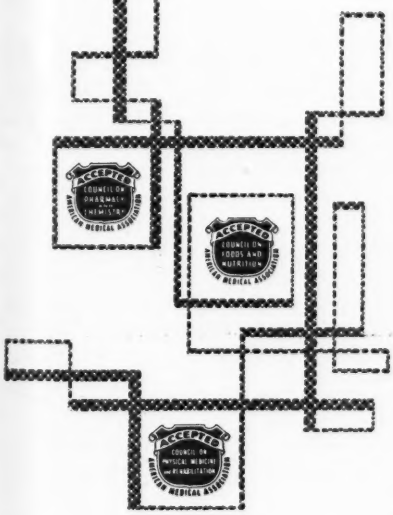

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in health education must yield effective results. The book shows how health can be propagated and presents the concept of the healthy mass. It offers practical suggestions on how the objective of health in the mass can be effectively achieved.

The armed services and intelligent industry make a strong point when they emphasize the importance of health maintenance. One chapter tells how the Army practices the epidemiology of health, while another chapter describes the epidemiology of health in industry.

The book shows how the epidemiology of health may extend into areas of individual and community health in chapters relating to tuberculosis, mental health, nutrition, and old age. Practicing physicians will find the chapters dealing with the functional approach to medical practice very interesting.

Finally, it is indicated that in the past health education has been an information-centered program, while now it must be a behavior-centered program. As such, it will have a great potential contribution to make to the epidemiology of health.

The book has many nuggets of thoughts which the reader will find well worthwhile. The reviewer found the book so interesting that he read it through in one sitting.—*E.V.T.*

The Physical Examination of the Surgical Patient. By J. Englebert Dunphy. Published by W. B. Saunders Company, Philadelphia. 326 pages, 188 figures. Price $7.50.

In the preface of this book of 300 pages, the authors state that "an x-ray or a laboratory test is so easy to order, or a consultation is so readily available, and the results of either or both often appear so definite that the art of simply 'looking at the patient' is in danger of being lost." This book teaches surgical diagnosis made with "Tools: eyes, ears, fingers, nose and brain." There is nothing that needs more emphasis in surgical diagnosis today.

This book tells you how to examine a patient from the head to the feet to determine the presence or absence of disease or abnormality. The technique is described clearly. The illustrations are many and good. Anatomy in relation to diseased organs is here depicted. The beginner will learn the terminology of surgical diseases. There are little "tricks" about making an adequate physical examination that every clinician must learn. They are found in this text.

This book is needed by every medical student and hospital resident. A copy should be on the desk of every teacher of surgery, not only as an outline for thorough teaching of physical diagnosis in surgery, but as a constant check on his methods of teaching lest they wander from real physical diagnosis to the frequently easier and less time-consuming diagnosis of the laboratory. The general practitioner would greatly profit by reading this book as a refresher course in surgical diagnosis.

Certain things contained in this volume have impressed the reviewer. They are: (1) the foreword by Dr. Francis D. Moore which tells in precise language the objective of the book; (2) the emphasis that physical diagnosis must be made by the natural senses; (3) the considerate treatment of the patient during examination; (4) the logical sequence of the surgical subjects presented; (5) and finally, the affectionate dedication of the book to two well known masters in the art of teaching surgery, Doctor David Cheever and Doctor John Homans.—*T.G.O.*

Clinical Instruction and its Integration in the Curriculum. By Deborah MacLurg Jensen.

This is a specific and detailed book which would be particularly helpful to the young clinical instructor. It is complete and well organized, and should be particularly helpful in the second unit on "Curriculum Study—Planning and Integrating Nursing Courses."

For the faculty that needs assistance in "Faculty Organization and Preparation," Unit Five is complete and could be a good guide.

The entire book however has perhaps more words than necessary. The busy instructor may be discouraged and not take the necessary time for guidance from it. Also, it could be written in a much more inspirational manner. One doesn't sense from it that nursing and clinical instruction are the interesting and exciting areas we know them to be.—*H.A.*

Endocrine Treatment in General Practice. By Max A. Goldzieher and Joseph W. Goldzieher. Published by Springer Publishing Company, Inc., New York City. 474 pages. Price $8.00.

A group of well known authors in the field of endocrinology have composed a book to be used by the general practitioner as a guide to endocrine therapy. This book concisely reviews the theories behind the use of the endocrines in various diseases. It then outlines specifically the course of treatment, perhaps even a bit too dogmatically in some instances. Of especial interest is the manner by which the endocrines are related to each individual system. The chapter on obesity and leaness is a typical example of the marked strides that have been made in the field of endocrinology and, I am sure, will open the eyes of many readers as to the correct rationale in the treatment of these disorders. This book is highly recommended.—*R.H.O.*

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An award for "distinguished service in medicine" was presented to Dr. Elwood A. Sharp, director of clinical investigation for Parke, Davis and Company, at the University of Kansas last month. The presentation was made by the alumni association of the school, which presents awards in lieu of honorary degrees.

Dr. Sharp developed Ventriculin for the specific treatment of pernicious anemia, and he has played an important role in the development of other medicines, including hormones. He and his staff conducted field trials for scores of new drugs, including Dilantin and Chloromycetin, before they were made available to physicians for prescription.

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Our economy can provide for adequate health services in the same sense that it can provide adequate whiskey, adequate cigarettes, adequate automobiles, adequate kitchen facilities, or adequate anything else that is set high enough in the priority of the desires of the average citizen.—*Emerson P. Schmidt, Director Economic Research, Chamber of Commerce of the United States.*

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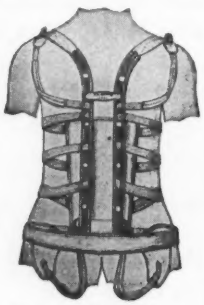

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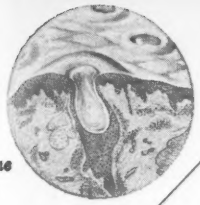
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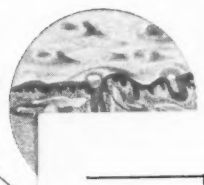
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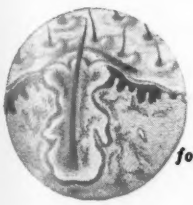
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1. Frost, L. H., and Jackson, R. L.: J. Pediat. 39: 585-592, 1951.

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